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ADDRESSES.

MEDICAL EDUCATION IN AMERICA: ITS PAST, PRESENT AND FUTURE.

Opening Address delivered at the Northwestern University Medical School, Chicago, Oct. 6, 1896.

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One can not give much of the history of medical education in America in a brief paper. At most one can show the effects of certain forces which have been in operation, and indicate some of the landmarks along the line of development.

All manifestations of life, whether the life of a single cell, of a person, or of a nation, are modified by the environment. So strong is this modification and so faithfully do living things follow the changes of the environment, that they may justly be said to be its product.

The educational institutions of a nation are manifestations of its life. The facilities and equipments of these institutions are organs of the State, which perform the function of developing citizens. From these premises it follows that educational institutions are modified by, in fact, are a product of, the environment.

Another law of life is: Community of environment leads to harmony of structure and function, and so we find that the institutions of a nation must be in harmony with the spirit of the nation, because developed under the influence of the same modifying causes.

If we admit that, in common with other manifestations of life, educational institutions are the product of evolution, then will we expect to find that these institutions present, in each country, certain peculiarities and that they are in harmony with the spirit of the nation with which they developed; further, we will find that the present condition of these institutions must be the result of factors active in the past, and the future condition will be the result of the factors at work in the present.

In the light of these general principles, let us briefly glance at the past[1] and present of medical education in America with a view to forecasting its probable future.

The first American medical college was not established until over one hundred and fifty years of English colonial life had passed into history. During the whole period—longer by twenty years than all our subsequent history—there had been in the colonies only 3,000 or 4,000 practitioners of medicine, and of these only a little more than one in ten had received the degree of Doctor of Medicine from some European institution. Of the remaining 90 per cent. some held certificates of apprenticeship to one of the educated physicians, while the vast majority dispensed their nostrums among their neighbors with no legal recognition and no justification for their activities save the mere toleration of the community. The first almost abortive attempt to regulate medical practice by law was made by New York in 1760, followed by New Jersey in 1772.

In Philadelphia in 1752 was established the first permanent hospital in America, with Dr. Bond as superintendent and several of his colleagues as associates. The private students of Dr. Bond received in the wards of this hospital the first clinic instruction given in this country.

The Medical Department of the College of Philadelphia was organized in 1765, with Dr. Wm. Shippen as professor of anatomy and surgery and Dr. John Morgan as professor of medicine. This faculty of two was soon increased by the addition of Dr. Adam Kuhn as professor of botany and materia medica and Dr. Benjamin Rush as professor of chemistry. Three years later New York City witnessed the organization of the Medical Department of King's College, now Columbia University, with a medical faculty numbering six: A professor of anatomy, of chemistry and materia medica, of physiology and pathology, of midwifery, of surgery and of the theory and practice of medicine.

Note the very important difference which existed in the organization of these two schools of medicine. From the first surgery and midwifery were recognized in the New York college as of sufficient importance to be made full and independent departments, while thirty-seven years elapsed before surgery was separated from anatomy in Philadelphia; and, in the University of Edinburgh, after which our early medical schools were modeled, it was not until 1831, or sixty-three years after the organization of the New York school, that surgery was made an independent department. Midwifery was still later in gaining recognition. From the early decades of this century, however, the progress of specialization has been ever more and more rapid, until now the number of specialties represented in the average medical faculty shows a high degree of differentiation.

But a more interesting phase of the history of medical education in this country is that which presents the varying requirements for graduation. During the first thirty years of our national history seven medical schools were organized. All of these schools pursued a similar plan, which is well stated in the following rules, in regard to the conferring of medical degrees adopted by the trustees of the College of Philadelphia July 1767:

For a bachelor's degree in medicine.—1. It is required that such students as have not taken a degree in any college shall, before admission to a degree in medicine, satisfy the trustees and professors of the

[1] For facts regarding the early development of medical institutions in America, I wish to acknowledge my indebtedness to various publications on that subject by Nathan S. Davis, M.D.

college concerning their knowledge in the Latin tongue and in such branches of mathematics and natural and experimental philosophy as shall be judged requisite to a medical education. 2. Each student shall attend at least one course of lectures in anatomy, materia medica, chemistry, the theory and practice of medicine and one course of clinic lectures, and shall attend the practice of the Pennsylvania Hospital for one year, and may then be admitted to a public examination for a bachelor's degree. 3. It is further required that each student, previous to the bachelor's degree, shall have served a sufficient apprenticeship to some reputable practitioner of medicine, and show that he has a general knowledge in pharmacy.

For a doctor's degree in medicine.—It is required for this degree that at least three years intervene from the time of taking the bachelor's degree, and that the candidate be fully 24 years of age, and that he shall write and defend a thesis publicly in college, which thesis shall be printed and published at his own expense. This scheme of a medical education is proposed to be on as extensive and liberal a plan as in the most respectable European seminaries; and the utmost provision is made for rendering a degree a real mark of honor, the reward only of distinguished learning and abilities.

The full significance of the term *apprenticeship* may be more fully understood from the following paragraph from Dr. Davis' address before the International Medical Congress in Philadelphia, in 1876:

> It must be remembered that during the colonial period of our history, and for thirty or forty years subsequent to the achievement of our national independence, it was the universal custom for young men who entered upon the study of medicine to become regularly apprenticed to some practitioner for a term of three or four years, during which time the preceptor was entitled to the student's services in preparing and dispensing medicines, extracting teeth, bleeding and other minor surgical operations, and when more advanced in studies, in attending on the sick; as a return for this he was obliged to give the student detailed and thorough instructions in all branches of medicine. Many of the more eminent practitioners frequently had several students in their offices at one time, constituting a small class, who were drilled as regularly in their studies as they would be in college. In some instances the term of apprenticeship was extended to six or seven years, and was made to commence at the early age of 15 or 16 years. All these customs were brought by the immigrants from the parent country, and their perpetuation here was rendered more necessary by the sparseness of the population and the difficulty of access to medical schools. In the midst of such customs, and at a period in the world's history when railroads, steamboats and other means of speedy transit were unknown, it was entirely reasonable that the first idea of a medical college should be to furnish means for a rapid review of the several branches of medical science, aided by such experiments and appliances for illustration as could be commanded, and the whole concentrated into as small a part of the year as possible. The idea of the founders of medical schools, both in Great Britain and in this country, was to make them *supplement*, but not *supersede* the work of preceptor and the medical apprentice. By combining several preceptors, each eminently qualified in some one department, in a college faculty, with access to anatomic rooms, chemic laboratory and hospital, all the branches of medicine then recognized could be very well reviewed in the form of didactic instruction, in five or six months of the year.

From these quotations and from the history of the early development of these institutions, it is evident that the fathers of medical education in America planned more broadly than their successors were able to execute. It was expected that a youth of 16 to 18 years would enter upon an apprenticeship of three to five years; would take one course of lectures at a college, receive the degree of Bachelor of Medicine, and return to practice under the guidance of his preceptor, where he could continue his studies at the bedside while assuming greater responsibilities than were possible as an apprentice. After three years he could return to the college for a second hearing of the courses of lectures, for the preparation of his thesis and for his final examinations, after which he would be rewarded with the degree of Doctor of Medicine.

The plan of conferring a degree of Bachelor of Medicine followed by the degree of Doctor of Medicine only after the candidate has reached greater maturity and has demonstrated his ability both in practice and the composition and defense of a creditable thesis, is still followed by the medical schools of some of the European states, and with the most salutary effect upon the standing of the medical profession. The conditions which existed in America during the early part of our national history made this excellent plan impracticable. The few schools could not prepare a sufficient number of Doctors of Medicine to supply the demand of a rapidly increasing population. Once the responsibilities of medical practice were assumed by the Bachelor of Medicine, these responsibilities were with difficulty and, therefore, infrequently laid aside for the second course of study leading to the second degree. And so it transpired that the plan was abandoned in America and the Bachelor's degree was abolished.

The revised regulations adopted by the trustees of the College of Philadelphia, Nov. 17, 1789, were in substance as follows:

> 1. No person shall be received as a candidate for the degree of Doctor of Medicine until he has arrived at the age of 21 years and has applied himself to the study of medicine in the college for at least two years. Those candidates who reside in the city of Philadelphia or within five miles thereof, must have been the pupils of some respectable practitioner for the space of three years, and those who may come from the country and from any greater distance than five miles, must have studied with reputable physicians there for at least two years.
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> 2. Every candidate shall have regularly attended the lectures of the following professors, viz., of anatomy and surgery, of chemistry and the institutes of medicine, of materia medica and pharmacy, of the theory and practice of medicine, the botanical lectures of the professor of natural history and botany, and a course of lectures on natural and experimental philosophy.
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> 3. Each candidate who, by virtue of a preliminary test, shall receive the approval of the medical faculty, shall then be admitted to a public examination before the trustees, provost, vice provost, professors and students of the college; after which he shall offer to the inspection of each of the medical professors a thesis written in the Latin or English language (at his own option) on a medical subject. This thesis, approved of, is to be printed at the expense of the candidate and defended from such objections as may be made to it by the medical professors at a commencement to be held for the purpose of conferring degrees on the first Wednesday of June each year.
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> BENJAMIN FRANKLIN,
> President of Board of Trustees.
> WILLIAM SMITH,
> Provost of the College and Secretary of Board of Trustees.

This action, inaugurated by the oldest and most influential of the American medical colleges, was rapidly followed by the others, so that medical education instead of covering a minimum period of seven years, was reduced to a minimum of four years, which consisted of two years of apprenticeship followed by two years of lectures and clinics, the second year being a mere repetition of the first. This action participated in by one of America's greatest and wisest men reduced to one-half the requirements for the doctor's degree; however, it resulted in the production of better prepared young medical men, because it produced Doctors of Medicine fitted for their work by

two or three years of apprenticeship and two years of college and hospital work in the place of Bachelors of Medicine, who had only received one year of college and hospital work. Subsequent history has shown that this change of plan was rather a stroke of diplomacy than act of statesmanship; for we are still suffering from the effects of this precedent. But we can not complain, for this was a simple adaptation to the environment. From that day medical education in America has been a peculiarly American institution, following every indication of the environment.

With the rapid opening up of new territory, the influx of immigrants and the founding of new cities came increased demands for practitioners of medicine. The new centers of population west of the Alleghenies were not content to patronize the well-established schools in the East, but, prompted by local pride, established new schools of medicine in every promising city of the Northwest territory. The result was, that though there were only five medical schools in operation in 1810, the thirty years next following that date witnessed the organization of twenty-six new schools—a greater number than the whole German Empire now possesses. Though some of these new schools were in the Eastern States, most of them were in the West and South. From 1840 to the celebration of the centenni al of our national independence, a period of thirty-six years, forty-seven more schools were organized. Some had for various reasons been discontinued, so that there were only sixty-three in active operation in 1876.

But during these sixty-six years of rapid increase in the number of medical schools, certain factors were at work to further debase standards of medical education. The course of study as first planned provided instruction in botany, zoölogy, physics and chemistry, and presupposed a thorough knowledge of the Latin language.

It will be remembered that Philadelphia College abandoned the requirement of a Latin thesis when they abandoned the preliminary degree of Bachelor of Medicine in 1789. The medical department of the University of Pennsylvania followed its example three years later. The University of Pennsylvania made botany and zoölogy optional. The colleges generally were ready in their response to this relaxation, and we find that during the first half of the century the candidate for entrance upon medical study was acceptable if he could read and write his own language, and that during the medical course no time was devoted to botany, comparative anatomy, physics or any subjects that make any part of a liberal education. The college term was shortened to twelve or sixteen weeks, but still worse than this the term of preliminary study in the office of a physician had become merely nominal. It was possible for a young man from the shop or farm, whose education represented what he had gleaned in a few winter terms of school and a few months as a busy practitioner's office boy and coachman—with the privilege of reading in the doctor's books at odd hours—it was possible for a young man, with such a preliminary training, to attend two winter terms of twelve to sixteen weeks each, hearing the same lectures and attending the same clinics the second year as the first, to receive the degree of *Doctor of Medicine*, which carried with it the license to practice anywhere in the country. This pitiable condition represents the lowest ebb tide of medical education in America. The weakest features of the condition have been pictured.

A redeeming feature is that even during this period there were many hundreds of members of the medical profession who were men of the highest natural endowments and who had spared neither time nor money in thoroughly equipping themselves for the most efficient work in their chosen profession. Their contributions to medical literature were notable, they usually occupied prominent positions upon medical faculties. The white-haired veterans upon the medical faculties all over the country represent this class. They have labored from the first for higher standards of education. Through colleges, through medical societies and through their pens—in the journals and in their text-books—they have given the best energies of their lives to the work of keeping the medical profession in harmony with the spirit of advancing standards.

We have traced briefly the history of medical education in America until about the middle of this century. We must not make the mistake of supposing that this was the only field of education that had suffered a lowering of standard during this period of our national history. The equipment of members of the other professions was no better than that of the medical profession. Colleges, universities, schools of law, medicine and theology had sprung up all over the newly opened territory of our country. They were, in a vast majority of cases, beautiful exemplifications of Paul's definition of faith: "The substance of things hoped for and the evidence of things not seen." But the faith of the new nation has been justified. The things hoped for have begun to materialize and the things which were at that time not seen have begun to come into evidence. A reaching up after higher standards may be seen in the plans of all the educational institutions of the country.

If we look for the factors at work during these two distinct periods of the development of our educational institutions, we will find them in the environment—in society. As a child takes especial pride in the mere number of dolls, marbles, or other playthings, so a young society counts its numbers, and sums up its quantities of everything. Young cities vie with each other in the number of inhabitants, number of factories, number of schools. Young schools vie with each other in the number of pupils, the number of instructors, the number of books in their libraries. The question of the quality of these several possessions or appliances is one which is propounded later in the development of the individual or of the state.

So while we in our buoyant youth were adding millions annually to our population, while we were organizing States, founding cities, building thoroughfares for traffic, we were establishing institutions of learning, and these nascent institutions possessed all of the quantity-loving attributes of youth.

During the last half of this century the spirit of progressive evolution has actuated our educational institutions. But progressive evolution is possible only in an environment which puts a premium on excellence of quality. The greater this premium is the more sharp the competition will be and the more severe the struggle for existence. The fittest will survive; the less fit will become secondary, then subordinate, then extinct.

One of the first marks of stability in our forming society was the premium which it placed upon real merit in members of the learned professions. The

best equipped lawyers and the best equipped doctors of medicine received national recognition; the ambitious youth, hoping for a position of honor in his profession, knowing that in the struggle for recognition the fittest would win, sought the best preparation at his command. This was the paramount factor in the evolution—the natural selection of the fittest by society. But there were several secondary factors. Most important among these was the effort which leading members of the profession had made to raise the standard of education. Before society passed beyond the quantity-loving phase of its development these efforts of the veterans of medicine were fruitless. Now the gates to advancement were open. Two factors have been most potent in this improvement. First, the influence of *medical societies*. One of the most influential of these is the AMERICAN MEDICAL ASSOCIATION organized in Philadelphia, in May, 1847. Our Dean, Dr. N. S. Davis, was one of a committee of seven appointed at the National Medical Convention in New York May, 1846. The report of that committee, presented and adopted the following year begins as follows:

WHEREAS, The medical convention held in the city of New York in May, 1846, has declared it expedient for the medical profession of the United States to institute a national medical association, and, inasmuch as an institution so conducted as to give frequent, united and emphatic expression to the views and aims of the medical profession in this country, must have a beneficial influence and supply more efficient means than have hitherto been available here, for cultivating and advancing medical knowledge, for elevating the standard of medical education and for promoting the usefulness, honor, and interests of the medical profession; therefore, be it

Resolved, That the members of the medical convention held in Philadelphia in May, 1847, constitute a national medical association to be known and distinguished by the title of the "AMERICAN MEDICAL ASSOCIATION." [Medical Education, Davis, p. 142.]

This ASSOCIATION has always been a friend of advancing standards. The more recently founded American Academy of Medicine is also exerting a stimulating influence.

The two factors of progress already discussed paved the way for the third and made its success possible. This third factor was the founding of schools adequately equipped to furnish young men with a thorough training in scientific medicine. This entailed an extension of the faculty-roll, the furnishing of expensive laboratories, and of increased facilities for clinical instruction. It involved the extension of the period of study and the arrangement of the studies in a graded course. The Chicago Medical College, founded in 1859, was the first school oganized upon this basis.

Its success from the first demonstrated the fact that the times were ripe for advance. Other schools fell into line. Standards rapidly advanced. Ten years ago the best schools required three years of eight months each. Today the best schools require four years of eight or nine months each. The work in these schools is strictly graded and consists largely of laboratory work in the first two years and of clinical work in the last two years. The actual time spent in college is now four or five times as long as the time spent by our grandfathers and the grading of the course and the introduction of laboratory and clinical work makes it probably eight or ten times as effective.

The youth can not now leave the field or the shop and go at once to the medical school. He must have had a year of Latin, and so much of mathematics, and of natural science as would represent at least two years of work.

But these are the minimum requirements; students are urged to complete in a college or in a university courses covering three or four years in the modern languages and mathematics and the physical and biologic sciences. Every year shows an increasing proportion of students in the professional schools, who have had at least two or three years of a college course. Johns Hopkins University alone requires, for matriculation in the medical school, a baccalaureate degree from a recognized institution.

Ten years ago the most optimistic friend of advancing standards would scarcely have anticipated that in 1896 all the reputable schools of medicine would require of candidates for the Doctor's degree, four years of medical study after a fair preparation and would be making laudable efforts to provide respectable laboratory and clinical courses. But such is the condition of medical education at present.

The spirit of progress is dominant. Society and the state want better equipped men in the learned professions. The recognized men in all of these professions are using their influence to raise the standards of professional education. A young man who aspires to a position of repute in one of these professions is ready to comply with the increased requirements in time and hard work, in order to give himself the best possible equipment.

Recognizing the presence and force of these factors of progress, the writer should not be adjudged too optimistic if he prophesies that in 1906 A.D. all reputable and recognized medical schools in America will require of a matriculate that he present a baccalaureate degree from a college or university, or credentials covering at least four years of language, four years of mathematics, one year each of chemistry and physics, and two years of the biologic sciences. A student so prepared would require four years for his medical course and should be given the baccalaureate degree at the end of his first year in medicine.

But several of the larger universities offer thorough courses in the comparative morphology of vertebrates, comparative mammalian osteology, special and comparative embryology, histology, general and comparative physiology and the special physiology of nutrition. A student with a preparation covering this field will usually have received the baccalaureate degree. Such a candidate should require but three years for his college studies in medicine.

What change will be made in the medical course? There will be no increase of the quantity of work required of the student, but there will be a very great improvement in the *quality* of work done. Certain courses will be required of all students; certain courses will be elective. The advanced work will be done in the elective courses. Each of these courses will have a special equipment. If the classes are not too large, they will meet periodically in the seminar rooms for the reading of prepared papers or the discussion of new literature. Each professor will take pride in securing for the library a good representation of the books and journals in his special field. Journal clubs in medicine, surgery, pathology, etc., will be organized by the students. Each of the more influential institutions will need a journal for the publication of the products of its own research. With such a preparation for medical study and with such opportunities, may we not hope that in the near future the degree of

Doctor of Medicine will signify all that was planned for it by our forefathers in Philadelphia nearly 140 years ago, viz.: "This scheme of a medical education is proposed to be on as extensive and liberal a plan as in the most respectable European institutions; and the utmost provision is made for rendering a degree a real mark of honor, the reward only of distinguished learning and abilities."

THE PREVENTION OF PELVIC DISEASE.

Annual Address on Gynecology and Abdominal Surgery, Michigan State Medical Society, June 4, 1896.

BY REUBEN PETERSON, M.D.

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GRAND RAPIDS, MICH.

For some years past the greater portion of the time of those who have given their attention to the diseases of women has been devoted to the development of more strictly surgical problems. That the greatest good has resulted from these investigations no unprejudiced mind will deny. As Americans we can be justly proud of the surgical discoveries and achievements of our gynecologists, by means of which lives of thousands of women have been saved or have been rescued from invalidism. Nor is it to be wondered at that surgical abuses should have crept in with the discovery that by attention paid to the laws of asepsis the peritoneal cavity could be invaded with impunity. The performance of unnecessary operations, the removal of organs which might have been saved are but incidents in the mighty advance which has been made. The evils resulting from the surgical attempts of those whose preliminary training was insufficient have been more than counterbalanced by the good resulting from the knowledge placed at the disposal of every practitioner. It is extremely popular to sneer at gynecology and, making much of its errors, to forget the debt the profession owe the tireless workers in this department. Modern pelvic pathology has been placed upon a firm basis only by the multiplicity of the abdominal sections, so deplored by some. The mistakes made by the pioneer surgeons have been recognized and profited by and we are entering upon a new era of gynecology and abdominal surgery. Pelvic pathology and surgery go hand in hand and true conservatism is the order of the day.

It is but a step to the higher realm of preventive medicine as applied to diseases of women. In the midst of scores of papers upon surgical technique one has appeared now and then which mildly urged that diseases curable only by surgical interference could have been prevented had suitable means been instituted at the proper time, but these efforts have for the most part been unheeded.

The cause and prevention of pelvic disease is a subject of interest both to the gynecologist and the general practitioner. The former from the abundance of material at his command is in the best position to study cause and effect in their relation to diseases coming under his specialty. It is to him we look for the application of the discoveries of modern physiology, hygiene and bacteriology in the prevention of pelvic troubles. But the carrying out of these preventive measures will necessarily fall to the lot of the general practitioner. To his care is intrusted the physical well-being of the growing girl, the wife, the mother and the woman past the menopause. To him do they look for counsel. His responsibility is great for upon his advice does the future welfare of the nation largely depend. It is time for the profession and the laity to understand that diseases of the female generative organs in a majority of cases are preventable. The popular opinion that women are born to suffer may be denounced as false. With scarcely an exception the origin of pelvic troubles can be traced to some transgression of nature's laws committed wilfully or through ignorance. If it be due to the latter the family physician must in a great measure be held responsible. His part as adviser should be active, not passive, if pelvic disease is to be controlled by wise prophylactic measures. The causes of pelvic diseases to which I would invite your attention are:

1. Imperfect development of the sexual organs.—At no period of life will prophylactic measures against pelvic disease prove of so much avail as during the few years prior to puberty. Yet at no time are they so much neglected. The girl is allowed to approach womanhood with no thought bestowed upon the needs of her developing generative apparatus. Unless perchance menstruation be developed beyond the expected time, when the physician is consulted, perhaps too late to entirely rectify the conditions resulting from neglect. Pelvic disease due to imperfect development of the sexual organs is very common. How often do we meet with infantile uterus, small convoluted tubes, anti-flexed and elongated cervix. Uterine and ovarian dysmenorrhea and the various reflex neuroses are common accompaniments and doom the sufferer to a life of invalidism unless relief can be obtained.

Oftentimes we may look for the causes of the conditions enumerated in faulty methods of education. The growing girl who should spend most of the time in the open air with never a care in the world, is closely confined for hours in a school-room, the air of which is so vitiated as hardly to be capable of supporting life. Here she may be found, ambitious to excel in her studies, poring over her books with back bowed and chest contracted. If the remainder of her time were spent in recreation the evil effects of crowded school-rooms might be counteracted, but such, as a rule, is not the case. The parents are ambitious that their daughter shall take high rank in her studies and that accomplishments such as music and painting be acquired at an early age. Hence the girl is urged to still greater mental efforts. Thus the nervous force so needful at puberty for the establishment of the menstrual function, is wasted in the acquisition of what may be considered trifles, compared with perfect health. It is here that the family physician's advice will be of inestimable value. He can urge apon the parents the necessity of healthy nervous and muscular systems for the proper development of the sexual organs. He should demand that the school duties be lightened and the hours of recreation in the open air be lengthened. By carefully instructing the mothers on questions of diet, he will be able to prevent the evils resulting from malnutrition so common in girls from 10 to 15. He will find the parents only too anxious to coöperate with him. They err only through ignorance of what is best for their children.

The false modesty about all matters relative to the generative organs which prevents the mother from explaining to the girl what she may expect at puberty is to be deprecated. The members of the medical profession have a great educational task before them if they are to instruct the growing generation of girls

through the mothers. Many false notions must be swept away if we are to arrive at a state of things when modesty, not prudery, shall reign supreme. It is inconceivable why a fundamental law of nature, whereby the species are perpetuated should be treated as such a mysterious, nay, almost sinful matter. When the time comes that the young girl can have the functions of her generative organs explained to her without danger of having a hysteric convulsion, we shall have accomplished a great deal. When she knows as much about her uterus and ovaries as she is taught about the stomach and liver, then she will be in a position to put into practice those prophylactic measures necessary to the maintenance of perfect health.

2. Gonorrhea.—It is exceedingly difficult to estimate what proportion of the inflammatory affections of the uterus, tubes and ovaries are due to gonorrhea. But that the percentage is high is apparent even to the most superficial observer, and the more the disease is studied in women and the greater the improvements in bacteriology, the higher is to be found this percentage. The question before us is not, however, a pathologic or bacteriologic one, for the lesions produced by gonorrhea in the female are well known. One reason for the prevalence of gonorrheal disease is that its gravity has never been correctly estimated by the laity or the profession. And this in spite of the teachings of Noegerrath, who, over twenty years ago, demonstrated that many so-called cures in the male are fallacies. This accurate observer proved conclusively that in many instances a latent gonorrhea existed, which could under certain circumstances be communicated years after the acute infection. It has required over twenty years of discussion for the profession to acknowledge the truth of Noegerrath's statements, and even now the popular opinion in regard to the disease shows that the profession have failed to impress the importance of these conclusions upon their patients. Is it not a common experience to find the young man who consults us for an acute gonorrhea, treating it as a most trivial affair? He thinks he has been unfortunate, that it is all. If it were explained to these young men that gonorrhea is something more than a "cold," that the disease, no matter in how light a form it exists, may produce the most serious results in the male genito-urinary organs, they would perhaps think twice before exposing themselves to the risk of infection. If it were generally known that gonorrheal disease was the cause of sterility and a long train of symptoms entailing the utmost misery upon the innocent wife, would the disease be looked upon as such a trivial affair by the laity? Let the profession do its duty and we shall soon see a change of opinion in the community. The world has suffered enough from the prevailing idea that a young man must sow his wild oats. If our boys were properly instructed in regard to the evils resulting from venereal disease, we should see fewer wild oats of that description. Let the parents be enlightened on what may befall their daughters if married to men suffering from latent gonorrhea. Let the father demand from the prospective son-in-law not a full pocket-book, but a clean bill of health, and there will be fewer unhappy homes. It is only by work in these directions that any headway can be made in the effort to eradicate gonorrheal disease. Closing the houses of prostitution will not do it, for the inmates are simply driven elsewhere. Licensing the houses has proved a failure as far as decreasing gonorrheal disease is concerned. The only hope lies in the thorough dissemination of knowledge of the evils resulting from the gonorrheal poison and in a direct appeal to the justice and honor of our young men.

3. Lacerations due to childbirth.—Thanks to the teachings of some of our American gynecologists, the profession is alive to the importance of lacerations of the cervix and pelvic floor as factors in the causation of displacement and disease of the pelvic organs. The attention of physicians should now be directed toward the improvements in their methods of repairing these lacerations. The gynecologist not infrequently obtains the history of a primary repair of a ruptured perineum which shows no trace of the obstetrician's work. Usually the failure of the operation has been the result either of want of knowledge how the stitches should be placed or a lack of asepsis either during or after the suturing. When more than one or two stitches are required it is best that the patient should be under the influence of an anesthetic. It is almost impossible to obtain proper coaptation of the torn edges of the perineal muscles when the patient is in pain and struggling. Perineal tears, as a rule, involve the muscles at the sides of the vagina. Unless the sutures be placed accordingly a "skin perineum" with a resulting prolapse will be the result. Silk or silkworm gut sutures thoroughly sterilized should be used. Catgut should not be employed because of the danger of subsequent infection. The patient should be examined within a month after delivery for the purpose of detecting any lacerations of the cervix demanding repair. Any such should be attended to not only for the immediate effect upon the uterus by the promoting involution, but also for the purpose of avoiding subsequent eversions, erosions and possible malignant disease.

4. Sepsis following childbirth and abortions.—The dissemination of knowledge among the laity as to the etiology of this disease and the responsibility laid at the door of the physician when a death occurs, has obliged every practitioner to introduce into his obstetric practice some sort of antiseptic technique. While simple habits of cleanliness on the part of the accoucheur has greatly decreased the mortality from puerperal sepsis, there is still a vast amount of pelvic disease which has its origin in septic infection contracted during or after chidbirth or abortion. This milder infection gives rise to septic endometritis, metritis, tubo-ovarian inflammations and pelvic peritonitis. One not infrequently hears a practitioner remark that since the application of the principles of antisepsis to his obstetric practice he has not lost a case from septicemia. This is commendatory, but one can not help wondering how many cases of mild sepsis he has had, with slow convalescence and subsequent suffering from pelvic disease. It has been demonstrated that the uterus and vagina becomes infected in the same way that any wound does. The former, however, is more susceptible to septic influences because of the favorable soil it offers for the development of pathogenic microörganisms.

Yet ordinarily the accoucheur does not take the same care in the sterilization of whatever is to come in contact with the parturient tract as he does before an amputation of the breast or leg. There is the greatest need for reform in the ordinary obstetric technique. The hands and arms are not rendered aseptic by one washing with soap and hot water or by scrub-

bing with a brush which from constant use and non-sterilization is reeking with germs. The immersion of the hands for a few seconds or minutes in an antiseptic solution renders them far from sterile. The family jar of vaselin commonly offered the physician as an unguent is as septic a material as could possibly be used upon the examining finger, but it is often employed by the physician without the slightest conception that by its use he is endangering his patient. The external genitals of the lying-in woman are not aseptic until so rendered, yet in how many cases are examinations made without these precautions being taken. These are but samples of the faulty technique, which is the cause of sepsis in varying degrees of intensity.

The minute attention to details of surgical cleanliness, which is so essential to the proper healing of wounds, should be used in the normal case of confinement if we are to avoid the milder forms of sepsis which may cause subsequent suffering. The physician must not refrain from taking these precautions from the idea that childbirth is a normal physiologic process and should not be interfered with. Childbirth is a normal process, but nature did not anticipate or provide against the introduction of septic material by the physician. It is time that members of the profession awake to the fact that they and they alone are in most instances responsible for the mild sepsis which prolongs the convalescence of the lying-in woman.

What has been said in regard to sepsis after childbirth may be applied even to a greater extent when the uterus is emptied prematurely. It will be found in many instances that the origin of pelvic trouble can be traced directly to a former miscarriage. It is unnecessary to enumerate the reasons for this. It would be much more profitable to discuss the question of what measures should be adopted to stop the practice of criminal abortion which is alarmingly frequent. The abortionist is to be found in every community and he plies his trade in the most bare-faced manner, even making use of the daily papers to advertise his business. It is doubtful whether much can be done toward the extermination of this class of human reptiles, who with their dirty fingers and instruments do more harm in a community than does smallpox. As a rule the law only reaches them when a death has resulted at their hands, and then conviction is exceedingly difficult. They are usually doctors debased by drink or drug habits and really belong to the defective criminal class.

Unfortunately, physicians are acquainted with another class of abortionists made up of so-called respectable members of the profession. We have been called to attend and have saved the lives of their victims from the effects of flooding or sepsis only by the greatest exertion. It is our fault if we know of these crimes and refrain from action. By his own acts the abortionist for the sake of money has abdicated his position among the honorable members of his profession. Let us scourge him from our societies and by so doing show our disapproval of his unprofessional conduct. Until this is done he will continue to disgrace us and cast shame upon an honorable calling.

Above all things let us be honest and truthful with ourselves and our patients when they apply to us for the relief of certain conditions. Let us not juggle with our consciences and prescribe something with the assurance that it will cause menstruation to appear, if pregnancy has not supervened. When they come to us with the old, old story and request that we help them out of their difficulties, explain to them the enormity of the crime they ask us to commit and not refer them to some one who will give them the desired relief. Let us show them that our refusal is not based upon fear of detection, but upon high moral grounds which are a part of our much abused code of ethics. It is proof enough that the profession has been negligent in its instruction in this matter of criminal abortion, else patients would not unblushingly insult us so frequently by this request.

It also devolves upon us to describe the evil results which may accrue from a miscarriage, even if death does not result from a septic instrument. The chances of resulting sterility must not be forgotten. The physician is called upon to enlighten the patient as well as to refuse to accede to her request. When this is done conscientiously, with no fear of losing the subsequent patronage of the patient, then will come a time when the commmunity will regard this question of induced abortion is its true light and these sins against nature with all the attending suffering will become less frequent.

Who can predict the mighty advances in gynecology and abdominal surgery which the one hundredth anniversary of the AMERICAN MEDICAL ASSOCIATION will reveal? During the past half century these two branches of our science have been revolutionized, chiefly, I am proud to say, through the genius and industry of American physicians. It is not beyond the realms of possibility that these same qualities directed toward the solution of the problems of preventive medicine will again revolutionize these departments during the course of the next fifty years.

Pythian Temple.

ORIGINAL ARTICLES.

THE NECESSITY OF GRANTING PRIVILEGED COMMUNICATIONS TO THE MEDICAL PROFESSION IN THE STATE OF ILLINOIS.

Read before the Medico-Legal Society of Chicago, Dec. 5, 1896.

BY DANIEL R. BROWER, M.D.

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CHICAGO, ILL.

Hippocrates, the sage of Cos, 460 years B.C., demanded, as you well know, of the students in his asclepia an oath in which, among other things, they swore that "whatever in connection with professional practice, or not in connection with it, I see or hear, in the life of men which ought not to be spoken abroad I will not divulge, as reckoning that all such should be kept secret." From the time of this great Grecian physician until today the great principle embodied in this portion of his oath has been the principle actuating all good physicians in their daily life and conduct. He knew, as every physician of today knows, that so close, so intimate, so privileged are the communications between patient and doctor that they should be kept as inviolable secrets. He knew, as we know, that there is in almost every household a closet and a skeleton, hid carefully from the eyes of ordinary men, but easily accessible to the physician, and this must

not be disclosed. He knew, as we know, that in the daily inspection of our patients we see stigmata, in the boldest figures as plain as the writing on the walls of Belshazzar's banquet hall, consequences of the violation of nature's laws, that must not be proclaimed from the housetops. He knew, as we know, that when a woman comes to us for relief from some discomfort and our microscope reveals the fact that she has not been leading the life that her position in society demands; that she is, indeed, no better than a prostitute, although the daughter of a highly esteemed family, that this information thus obtained is privileged, and that no advantage can possibly come from its publication. It is our duty to lead her from the errors and dangers of her life, but not to disgrace her and her family by the publication under any circumstances of this information thus obtained. And he knew, as we know today, that there are hundreds of ways in which information comes to physicians, wrung out of their patients by their conscience-stricken condition, wrung out of patients by the fear of death, obtained by simple, careful scientific inspection, placing us vastly closer to the innermost recesses of the people than either the clergy or the lawyers can ever hope to attain. These communications are not in all communities privileged, either as to the clergy or the doctors; because, I presume, that the laws are made, not by the doctors, not by the clergy, but by the lawyers. For, in common law, communications between client and legal advisers are privileged, but not similar communications between clergymen, physicians and clients. They tell us that these communications must not be privileged because, if so, crime will be much more difficult of detection. This argument may have been a very adequate one in olden times, but certainly today it is altogether insufficient.

In England, priests and physicians have no privileged communications. In France they have, and I can assert, I think, without fear of contradiction, that the detection and punishment of crime is as prompt and sure in France as in England.

In the United States, twenty-one States and Territories regard these professional confidences precisely as they are regarded in France, as privileged communications, and these States and Territories are: Arizona, Arkansas, Colorado, California, Indiana, Idaho, Iowa, Kansas, Montana, Michigan, Minnesota, Missouri, Nevada, Nebraska, New York, Ohio, Oregon, Utah, Washington, Wisconsin and Wyoming. I think I may safely say that the machinery for the conviction and punishment of crime operates just as well and as promptly in these States and Territories as in their less fortunate sisters.

It might be interesting to consider the subject matter of some of these laws in other States.

In California the law reads: "A licensed physician can not without consent of patients be examined in a civil action as to information acquired in attending patients which was necessary to enable him to prescribe or act for the patient." In Colorado, it is similar to that of California.

In Indiana the law reads: "Physicians are incompetent witnesses as to the matters communicated to them as such by patients in their professional relations." The law in Iowa is much the same as in Indiana. In Kansas the law is much the same as in California.

In Michigan the law reads: "No person duly authorized to practice physic or surgery shall be allowed to disclose any information which he may have acquired in attending any patient in his professional character, which information was necessary for him to prescribe for such patients as a physician or do any act for him as a surgeon."

In Minnesota the law reads: "A regular physician or surgeon can not, without the consent of his patient, be examined in a civil action as to any information acquired by attending the patient which was necessary to enable him to prescribe or act for the patient." The Missouri law is similar to that of Michigan.

The Nebraska law reads: "No practicing attorney, counsellor, physician or surgeon, minister of the gospel, or priest of any denomination shall be allowed in giving testimony to disclose any confidential communications properly entrusted to him, to enable him to discharge the functions of his office according t the usual course of practice or discipline."

In New York the law reads: "A person duly authorized to practice physic or surgery shall not be allowed to disclose any information which he acquired in attending a patient in a professional capacity, but gives the right of waiver to the patient or person confessing."

In Ohio it is enacted that, "A physician shall not testify concerning a communication made to him by a patient in his relation as adviser to his patient; but the physician may testify by the expressed consent of his patients, and if the patients voluntarily testify the physician may be compelled to testify on the same subject."

In Wisconsin the enactment is that, "No person duly authorized to practice physic or surgery shall be compelled to disclose any information which may be acquired in attending any patient in a professional character, and which information was necessary to enable him to prescribe for such patient as his physician or to do any act for him as a surgeon."

It is very surprising that the great State of Illinois, with its medical colleges and hospitals in the very first rank of such institutions in the world, with so many practitioners of international reputation, and with laws regulating public health, and great medical charities that are not surpassed, should be in the rear-guard of States in this important matter; and it is also surprising that there are so many well informed physicians who are not aware of the position the State occupies.

In France the Penal Code, Art. 378, directs that if physicians, surgeons, officers of health, as also apothecaries, midwives and all other persons depositaries of secrets, either through their condition or profession shall reveal these secrets (except in cases where the law obliges them) they shall be punished with fine and imprisonment; and in another place it is clearly indicated that the exception has reference to crimes that put the safety of the state at hazard. The adjudications under this law have been various, seemingly dependent upon the judicial officer. A Dr. St. Pare, surgeon in the French navy, in the case of a duel in which he acted as surgeon, for refusing to answer the question, "Are you in attendance on M. Giraud, wounded some days since in a duel? Where is the wound situated and for how many days will he be incapacitated from pursuing his ordinary avocation?" was fined 150 francs.

Some points have been raised in these several States that are of interest in this connection. One

was as to whether physicians shall testify after death of the patient, as in cases of testamentary capacity, insurance cases, etc. If it had been always strictly interpreted it might cause some inconvenience and the court of appeals of New York has admitted that it might cause mischief.

In Indiana in a similar case the court held that the legal representative of a patient might waive the privilege.

In the people *versus* Kennuder, 119, New York, 585, it was held that the privilege does not extend the information as to the patient's condition, either mental or physical, gained by the doctor who is sent to make an examination of the prisoner's mental or physical condition in jail, provided the testimony does not include conversations with the prisoner or transactions in jail. If the doctor simply testifies as to his opinion of a person's mental or physical condition as he saw him in his cell or court room the evidence is unobjectionable.

In Michigan several cases have been argued upon the question whether if the patient states a certain physician attended him the physician can be put on the witness stand to contradict the patient as to this fact.

In Brown *versus* Metropolitan Life Insurance Company, 65 Michigan, 306, this was not allowed.

In New York, it has been further decided that if a party claims to exclude evidence as coming under this prohibition he must show the relations of a physician to the patient to have existed, and that the rule does not apply to criminal cases. Moreover, the courts have seemed to rule that it is not needed to definitely prove the information to have been necessary to enable the physician to act as such, this being inferred by the relation of physician and patient. Furthermore, the rule of evidence which excludes communications between physicians and patients must be invoked by an objection at the time the evidence of the witness was given.

The penalty of the disclosure of confidential communications appears to be regulated by the general law. Bishop on Rights and Torts, 1889, Sec. 295 and 301 gives the spirit of the law as follows:

"The doctrine that one who follows a command or permission of the law, is not liable to another, casually injured thereby, furnishes a wide protection to defendants in libel and slander. But this principle covers in general only honest and careful utterances. . . . Sec. 295.

"We may add as the doctrine here to be considered, that whenever the law or any social duty which the law recognizes, permits or requires an utterance not thus privileged absolutely, it is conditionally so, that is, if cautiously and circumspectly made so as not to inflict needless injury, in other words, if it is honest and without malice—otherwise it is not protected."

As illustrations are given: A letter written by a man to his wife's mother, cautioning her against one she contemplated marrying, was in an English jury case, ruled by Alderson B. to be privileged (Todd *versus* Hawkins 8, Car and P. 88). But in a Massachusetts case (Joannes *versus* Bennett, 5, Allen 169) a like letter from a pastor to a girl was ruled otherwise as he was not related to her. See also in N. Y. Byam *versus* Collins, 39 Hun. 204.

It is not likely that any court would rule a communication or consultation for criminal purposes to be privileged. In New York this has been specially ruled against. Hewitt *versus* Prime, 21 Wend. 79. Hageman on Privileged Communications.

I am very glad the Medico-Legal Society of Chicago, composed as it is of representative members of the medical as well as of the legal profession, has taken up the consideration of this important question, and I believe they fully agree with me that the State of Illinois should as speedily as possible be placed in the role of States that makes the communications of physicians, lawyers and clergymen privileged communications, and we sincerely trust, at least, that there is no medical man in this association who would not prefer to sacrifice his personal liberty rather than violate the secrecy or implicate the character of his patients and under no circumstances permit professional secrets to be dragged into publicity in a law court.

A RAPID AND SUCCESSFUL TREATMENT OF HERPES ZOSTER.

Read in the Section on Dermatology and Syphilography, at the Forty-seventh Annual Meeting of the American Medical Association, held at Atlanta, Ga., May 5-8, 1896.

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Although herpes zoster is one of the effections of the skin which is of comparatively frequent occurrence and has been known ever since cutaneous eruptions were observed, there is no manner of doubt that many points connected with its etiology and pathology are still veiled in more or less obscurity. It was not until quite recently that a consensus was arrived, at in regard to its being a relapsing disease. And, for this knowledge we must give the general practitioner due credit. Without any pretenses to a special knowledge of cutaneous medicine, the country doctor has frequently had occasion to observe "shingles" occur a number of times in the same individual. Such instances have been reported so often that the idea no longer prevails that one attack of herpes zoster confers immunity against subsequent attacks in the same individual. Nevertheless, this was the opinion formerly held by the best observers and a reference to works on dermatology will show that it was generally accepted. The cause of this no doubt lay in the fact that the patient either did not apply for relief when another attack came on or sought the services of some one else in the hope that this latter would be able to prevent a recurrence.

Another idea which has prevailed is that the disease has a self-limited course, lasting from three to four weeks, when spontaneous recovery takes place. I have seen cases in which successive crops of vesicles have appeared for two or three months with breaking down of the lesions and ulceration. Not only this but the ulceration would become phlegmonous and during all this time the neuralgic pains were of an intense character, to such a degree that opium and other sedatives soon became impotent. Such a self-limitation is certainly one not to be desired and therapeutic interference is not only indicated but imperatively demanded by the exigencies of every case.

It has been asserted by some good authority that no treatment will cut short the course of herpes zoster and that the best which can be expected from medication is to diminish the neuralgic pain. This is far

from being either satisfactory or encouraging; and it would certainly be postively discouraging to those who have occasion to treat that dread condition—zoster ophthalmicus. For it has been too often the case that an inability to arrest the process has resulted in perforation of the cornea and, not infrequently, destruction of the globe. When the conjunctival surface is not attacked we are told that herpes zoster of the fifth nerve invariably leaves scars to mark the former location of the lesions, a dictum, which, to my mind, is a *non-sequitur*. It is based on the fact that active interference has not even been attempted under the fallacious idea that the disease must be left to run its course. I have always been in the habit of treating these cases rather energetically and my efforts have been awarded by excellent results. Whether it has been merely a coincidence that such a short period of treatment was followed by recovery, or a peculiar circumstance that all were cases that would have recovered spontaneously in a few days I shall not stop to discuss. The fact remains that a similar treatment in a number of cases was eminently satisfactory and I shall continue to use it until a sufficient number of failures declare themselves to demonstrate its inefficiency. In principle, the method has nothing new to recommend it; in its application, however, it is characterized by some details, which will recommend it for simplicity and ease of administration. The following are a few cases which occurred in my private and hospital practice, and which will serve to illustrate the points I wish to make.

Case 1.—Charles W., photographer by occupation, aged 32, is of robust physique and is a prominent and active member of a gymnasium. He exercises daily but is inclined to take on adipose tissue. Some few days before I saw him he conceived a notion that his liver, bowels and other internal organs were not "working right." In order to remedy what he conceived to be his generally bad condition he made a concoction according to the formula furnished by some kind friend. An examination of the receipt showed it to contain a very large amount of colchicum. As a result of the ingestion of this mess the patient was violently purged and a repetition of the dose made him very feeble indeed. The third day after taking the mixture an eruption of herpes zoster declared itself. As soon as the vesicles appeared a slight itching and a marked neuralgia were manifest. The next morning I saw the patient and the distribution of the eruption was about as follows: Anteriorly, a patch of pin head sized vesicles about 1½ by 2 inches in size was located over the third intercostal nerve at a point corresponding to about the center of the clavicle. Posteriorly, the eruption followed the course of the same nerve extending from about five inches to the right of the spinous processes of the vertebræ to the margin of the trunk and with an almost uniform width of 2 inches.

The treatment ordered was to take thrice daily, after meals, the following pill:

℞.	Acidi arseniosi. . . . . gr. 1-20	003
	Pulv. piperis nigris . . . . . gr. ij ss	15
	Ext. gentian . . . . . q. s.	

M. Ft. pil. No. 1.

These were ordered to be taken for ten days.

Externally: campho phenique powder liberally sprinkled upon absorbent cotton and applied to the eruption. This dressing was to be repeated twice daily. In three days crusts had formed and, on the fourth, the case was at an end, the neuralgia having completely disappeared.

Case 2.—James C., a druggist, 36 years of age, presented himself for treatment of an intercostal neuralgia of the right side. He complained of a marked neuralgic pain which had preceded the eruption some five days. It was not the intensity of the pain that the patient complained of but the fact that the eruption was spreading. At the time I saw him the outbreak consisted of a number of patches of the size of a silver quarter dollar distributed over the area supplied by the sixth intercostal nerve. It extended from a point about six inches to the right of the median line posteriorly and about four inches from the median line anteriorly. The vesicles were well-formed and, in many places, two or three had coalesced.

This patient was placed on the same treatment as Case 1, and in five days the cure was complete. He was ordered to continue the pills for two weeks longer in order to avoid the possibility of a recurrence of the trouble. Up to the present no reappearance of the trouble has manifested itself.

Case 3.—Winston W., aged 17, a buggy-boy in a livery stable appeared at my clinic with the statement that the eruption showed itself a week previously. There was no neuralgia experienced before the eruption appeared; but when it did manifest itself neuralgic pains were felt. The eruption appeared over the tract of the fifth intercostal nerve. Five patches were present to the left and below the left nipple, three below the left scapula, one being very small. The patient is of a highly nervous temperament, a slight tickling almost throwing him into convulsions, making him jump about in a grotesque manner and grasp anything or any one within reach and strike the object or person with his fists. At the stable where he worked he was constantly subjected to this nervous excitement and this may have acted as a causative factor.

The following treatment was ordered:

℞.	Acidi arseniosi. . . . . gr. 1-30	002
	Pulv. piperis nigris . . . . . gr. j	06
	Ext. gentian . . . . . q.s.	

M. Ft. pil. No. 30.

Sig. One pill after each meal.

Externally:

℞.	Pulv. camphoræ. . . . . ℥ij	8
	Bismuthi subnitrat . . . . . ℥iv	16
	Cretæ preparat . . . . . ℥j.	32

M. Sig. Apply twice a day.

This powder was ordered spread on cotton as in the other cases and six days after the inception of the treatment the patient was cured. No new vesicles formed subsequently, the pain had disappeared and no new attack has manifested itself since.

Case 4.—Lydia C., a school-girl 9 years of age, has had recurrent attacks of herpes zoster every year. She is a blonde, but appears well nourished. She has recently suffered from imitative chorea but is now well of that trouble. Her nervous system, however, is very susceptible to shocks of all kinds. The present attack is the most severe she ever experienced. It appeared some four days before she came to the clinic. A large patch of closely aggregated vesicles was located on the left and posterior side of the neck. Other patches occurred on the left shoulder, upper part of the left arm over the area supplied by the musculo-spiral nerve. The neuralgia was intense, being worse at night. The child showed plainly the intensity of the neuralgic affection. There was no zosterian fever present nor any history of such. It would hardly exist in view of the fact that a marked neuralgia was present.

The treatment in this case was the following:

℞.	Liq. kali arsenitis . . . . . ℥ss	2
	Vini ferri	
	Syr. limonis . . . . . āā ℥jss.	48

M. Sig. Teaspoonful in water after each meal.

Externally: The same powder was used as in Case 3. On the sixth day the pain had all disappeared as well as the eruption and there existed but a very slight superficial desquamation. The patient was subsequently seen and the favorable condition continued.

Case 5.—Oscar M., a laborer 64 years of age, applied at my clinic two days after the eruption had declared itself. No antecedent trouble or present discomfort could be elicited beyond constipation. No neuralgic pain was present nor had any been felt and no medicines had been taken. In fact, no neurotic basis could be discovered as a possible cause of the eruption. This latter consisted of a vesicular eruption, such as is characteristic of herpes zoster, extending along the level of the right twelfth rib from a distance of about two inches from the posterior median line, over the abdomen, up to the umbilicus. The vesicles were well marked, rather large, but with no tendency to coalesce. The only subjective symptom complained of was an intense burning sensation at the site of the eruption. The treatment ordered consisted of the following:

℞.	Liq. kali arsenitis . . . . . ℥vj	24
	Vini ferri	
	Syr. limonis . . . . . āā ℥iij	96

M. Sig. A teaspoonful in water after each meal.

Externally: Campho-phenique powder was liberally dusted on coton and applied to the eruption twice daily. Five days after the treatment was begun the eruption was all dried up and three days later no vestige of it remained. The patient was ordered to continue the internal medicine until it was all

taken and strictly enjoined to present himself should any new symptoms show itself. He never reappeared.

Case 6.—Daniel F., an engineer 36 years old, appeared four days after the eruption had occurred. About two weeks previously he was treated for diarrhea. He had been drinking alcoholic liquors freely. His diarrhea subsided in two days and he was constipated. The eruption consisted of isolated patches of vesicles over the tenth and twelfth ribs on the right side of the back. He complained of some itching and of a neuralgic pain on the anterior portion of the trunk. As the patient expressed it, "the pain stops at the middle line." The eruption had an irritated appearance.

The treatment ordered was the same as in Case 5. Three days later some of the lesions were well, no new ones having appeared. Five days later the pain was much less the lesions disappearing. Ten days after presenting himself the patient was practically cured.

Such is a brief outline of cases of herpes zoster seen by me in July, 1895. I have purposely chosen these, as the time which has elapsed since then has been sufficient to arrive at a positive conclusion as to whether the attack was definitely cured in each case. It will be interesting to note whether recurrences take place or not. So far I have noted none and I have been careful to keep them under observation. What concerns us more directly is in reference to the treatment and I desire to incorporate in these views some experiences noted before and after the treatment of the cases which have been outlined above, more especially as regards some of the generally followed practices. The cases which have been recited certainly sufficiently demonstrate that the opinion that herpes zoster can not be cut short in its course is a fallacious one and will not be referred to at any length.

Some few points which will be noted in connection with the cases outlined are that, in the first case, arsenious acid seemed to act better than Fowler's solution. I have found that the Asiatic pill is, on the whole, the best method of administering arsenic and its use may be prolonged for a much longer period of time than the Fowler's solution. Furthermore, I have never seen any untoward symptoms follow the administration of arsenious acid, whereas the solution has produced arsenical dermatitis in a number of cases, notably factitious zona pectoralis. A point which I have always observed has been to give a sufficient dose and I am certain that it is owing to this fact that attacks of zona were aborted in such a short time. An examination of the histories of all the cases given will demonstrate the short time required to relieve each one and furthermore that this period was shortest in those who took the Asiatic pill. Certainly, the time was very short and the neuralgia ceased when the eruption disappeared.

The local treatment which I have employed is one which has always acted favorably with me. Protection is afforded by a cotton dressing and a rapid disappearance of the eruption by means of a drying, analgesic powder. I have essayed lotions, collodion, plasters, and similar methods but never found any one equal to the old and time-tried powder. Another fact which I have observed is that the vesicles do not break down, no ulceration occurs and consequent scars do not result from an attack.

While the treatment I have outlined is both rapid and successful, it possesses another advantage which, in my opinion, is not the least valuable. I allude to its simplicity. It may be carried out by any practitioner of medicine; it requires no special, rare, or costly preparations, and can be easily understood by any one. It might be said that its very simplicity is its greatest objection in the eyes of those who look upon dermatology as a mysterious science instead of what it really is—cutaneous medicine.

Before closing these remarks I desire to call attention to the fact that the most difficult thing to determine is the cause of herpes zoster. While in some of the cases given, a neurotic base apparently existed, in others no such history could be elicited. So far as parasitism is concerned I never could satisfactorily establish it nor do I remember that any one has succeeded in doing so positively. That a neurotic element exists, however, is beyond doubt, in view of the constant presence of a neuralgia or some very marked pain which disappears simultaneously with the eruption.

CASE OF ACUTE CIRCUMSCRIBED EDEMA OF GOUTY ORIGIN.

Read in the Section on Dermatology and Syphilography, at the Forty-seventh Annual Meeting of the American Medical Association, at Atlanta, Ga., May 5-8, 1896.

BY BERNARD WOLFF, M.D.

ATLANTA, GA.

This paper is presented with a view to call attention to an etiologic factor which has apparently escaped the notice of writers on the subject of angio-neurotic edema.

Quincke, in his original and classic article (in the *Monatshefte für practische Dermatologie*, i, No. 5, 1882) cautions against confusing acute circumscribed edema with that of menstrual, malarial and arthritic origin. It has sufficient points of difference in gross appearance from these types, but as regards causation it can not be discriminated from the edema occasioned by these three causes. Matas has reported a case of malarial origin in which the periodicity of the attacks was marked. Osler asserts that the disease may be hereditary through many generations and mentions a family in which five generations were affected, including twenty-two members. Milroy of Omaha described cases of hereditary edema, in which there were twenty-two individuals in six generations. The cases could scarcely be appropriately called acute, as the edema was solid, affecting one or both legs and existed from birth.

Alcoholic excesses, gastro-intestinal disturbances (Elliot, Quincke), mental excesses, fatigue, grief, traumatism, ingestion of certain articles of food, as fish, apples, etc., have been cited as causative factors. In the latter instances the disease shows a close affinity to urticaria. The disease is regarded as a vasomotor neurosis, by which the permeability of the vessel walls is greatly increased. The latter, which is the view taken by Quincke, does not agree with the theory advanced by Unna of spasm of the muscular coats of the veins in explanation of urticaria, the giant form of which greatly resembles angio-neurotic edema. So long as the nature of gout remains unknown, the connection of it with the case in point may be alone explained by hypothesis. The theory held by Cullen is expressed by Duckworth as: "There is a diathetic habit which is expressed in, 1, a neurosis of the nerve centers, which may be inherited or acquired; 2, a peculiar incapacity for normal elaboration within the body, not merely in the liver, in one or two organs, of food whereby uric acid is formed at times in excess or incapable of being transformed into more soluble or less noxious products." This would bear upon the point of the neurotic origin of angio-neurotic edema. If, further,

gout be regarded as a toxemia, why could not such a condition so lower the vitality of the vessel walls, reflexly, as to diminish their power of resistance to the passage through them of the elements of the circulating fluid? Or, again, might not the toxic principle having itself passed into the tissues, have attracted chemotactic to it a special exudate? Many of the general causes which evoke an attack of gout have been enumerated, as those also of angio-neurotic edema. This is expressive of dependence upon a common causation. The case in point is that of a lady, now 56 years of age, of unusually robust physique; the family history is excellent; the personal equally good, with the exception that the patient prior to the menopause suffered from frequent attacks of migraine and that she has for fifteen years been the subject of gout; the last joints of the fingers are distorted and misshapen by gouty deposits; the digestive organs act normaly. Six years ago while sitting by an open window in a railway coach, the patient suddenly noticed a stiffness and rigidity of the left half of the upper lip, accompanied by tingling and numbness; the lip swelled rapidly, but the swelling continued limited to the left half of the lip. At the same time the affected joints of the fingers became red and painful. This attack, which greatly alarmed the patient, lasted for several hours and then disappeared. The attacks recurred at intervals of four or five months. About two years ago I saw the patient during one of the attacks. The edema was limited to one half of the lip, which was smoothly enlarged; the mucous lining was smooth, shining, everted; the edema was board-like in hardness; the tongue was unaffected; the gouty fingers, particularly the index fingers, were very painful, red; flexion of the distal phalanges exaggerated; the skin over the tophi was tense and seemed about to break over the rough angles of the deposit. The subjective sensations were not marked, there was the same feeling of rigidity and immobility of the lip, with tingling and numbness; no itching; the bowels were regular; there was history of dietary irregularity. The attacks have become less and less frequent, the last one occurring about a year ago. The occurrence of the attacks, synchronous with acute explosions of gout and the similarity of cause in both affections, constitutes presumptive evidence of their relationship in this case.

GRANULAR LIDS.

Read to the Wabash County Medical Society of Indiana, Oct. 15, 1896, and by unanimous vote requested to be published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

BY DUDLEY S. REYNOLDS, A.M., M.D.

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The term "granular lids" means so much to the laity, and so little to the pathologist, that one may well feel surprised at the almost universal use of the term.

In his "Synopsis of Diseases of the Eye and their Treatment," Mr. Benjamin Travers, London, 1824, at page 277 says: "The granular state of the tarsal conjunctiva is a very common result of the mild suppurative ophthalmia."

Desmarres, in his "Treatise on Diseases of the Eye," Paris, 1847, page 185, says: "The palpebral conjunctiva, in advanced stages of puro-mucous conjunctivitis presents the appearance of a multitude of villosites. These small granules occupy the whole surface of the lid, and resemble somewhat the small papillæ of the tongue" (La conjonctive palpébrale, surtout dans sa portion tarséenne, offre une multitude de villosités, de petites granulations d'une extrême ténuité, et assez semblables, quant à l'aspect, aux papilles de la langue). He accounts for their presence by the distention of the mucous follicles, making pressure on the blood vessels at the base of the papillary membrane, interrupting the return of the blood from the papules, leading finally to such a state of engorgement as to develop a considerable degree of hypertrophy. It would be difficult to find a better definition of that form of so-called granular lids, which we now recognize as hypertrophied papillæ.

In the fourth edition, 1854, of Mackenzie's "Treatise on Diseases of the Eye," page 436, in describing the various stages of puro-mucous conjunctivitis, he says: "It is characterized chiefly by the papillary structure of the palpebral conjunctiva remaining hypertrophied, and presenting a granular or sarcomatous appearance, while the lids, in this state, rubbing on the cornea, render this part of the eye vascular and nebulous." At page 454 of the same work, the author says: "The granular prominences in question are nothing more than the papillæ of the palpabral conjunctiva, hypertrophied by inflammation." At page 643 begins a chapter entitled "Granular Conjunctiva." In the section on symptoms, page 644, the author says: "In the angle of reflection between the lower eyelid and the eyeball, we not infrequently observe a row of bodies of a rounded form and somewhat vesicular appearance. These are different from enlarged papillæ, and consist, I presume, in the muciparous glands described by Krause, enlarged by chronic inflammation."

Stellwag, 1867, page 327, divides granular conjunctivitis, which he describes as synonymous with trachoma, into two principal classes; the papillary, confined to the papillary region of the conjunctiva, and the pure granular, both varieties being sometimes observed at the same time in the same membrane. That which he classes as the pure granular type, he describes as being "abundantly strewn with bodies resembling the spawn of frogs, which are somewhat swelled, and traversed by a coarse, vascular network." The mixed type, he says, "is made up from the symptoms of granular and papillary trachoma." The so-called frog-spawn appearance in trachoma of the conjunctiva is a condition by no means rare in the mucous membranes of other situations, and I have rarely seen cases of these spawn-like affections of the conjunctiva, in which corresponding changes were not to be found either in the Schneiderian membrane, or in the pharynx.

I have traced the descriptive language of the two forms of so-called granular lids with the intention of indicating the chronologic order in which these morbid conditions were first described, as indicating necessary modifications of treatment.

Mr. Soelberg Wells of London, "Treatise on Diseases of the Eye," third edition, 1873, tries to follow Graefe's attempt at a clinical distinction between papillary hypertrophy, and that "peculiar vesicular condition of the conjunctiva, which is frequently premonitory of that affection," and which he maintains was first accurately described by Stromeyer, 1861, and subsequently by Dr. Frank of the British army, and

in the learned reports of Sir Geoffrey Marston, 1862. Krause and Schmidt, after a painstaking series of microscropic examinations of the trachomatous bodies came to the conclusion that they are "closed lymphatic follicles situated directly beneath the epithelium." These two eminent gentlemen, last named, were of the opinion that the vesicular bodies are merely anomalous states of physiologic organs; while Stromeyer, whose observations were chiefly limited to military barracks and hospitals, regarded them as a manifestation of a mysterious pathologic state, in some manner connected with defective hygiene. Dr. Marston, whose opportunities were perhaps greater than any observer of that time, found "vesicular granulations very prevalent amongst the poorer classes in Gozo." In discussing the probable atmospheric origin of this constitutional dyscrasia, he says, "the prevalence of vesicular disease of the lids is due to defective sanitary arrangements, and I conceive the palpebral conjunctiva offers a delicate test of the hygienic conditions of a regiment." These observations were begun by the military surgeons, and the first of them were published as early as 1848, yet it was as late as 1868 that Graefe first pointed out the true distinction in the clinical aspects of hypertrophied papillæ in the conjunctiva, and the true trachoma, characterized by an appearance resembling sago grains, or frog-spawn, in the conjunctiva, sometimes totally independent of, and without any manifestation of inflammatory changes in the membrane.

That form of granular lids described as an acute primary disease, may now be easily accounted for upon the hypothesis that the preëxisting state of trachoma, having escaped observation until the acute puro-mucous or so-called catarrhal conjunctivitis sets in. I have known persons with apparently normal eyes, in whom the palpebral and retrotarsal portions of the conjunctiva were literally studded with ovoid semi-translucent bodies presenting an appearance closely resembling frog-spawn. I can call to mind at this moment, a number of persons in whom this condition exists, and, but for an occasional attack of intermittent fever, there are no manifestations of ill health. It is only when the conjunctiva has been disturbed by the presence of some ferment or by some traumatic influence, that the trachomatous bodies become a serious complication.

From what I have already said, you would naturally infer that I make a broad clinical distinction in the conditions commonly called granular lids, and I think I have pointed out sufficiently the widely varying pathologic conditions upon which a clinical distinction may readily be founded.

With the understanding that papillary hypertrophy is always preceded by some form of inflammation sufficiently severe to penetrate the parenchymatous structure, we shall have to consider: 1, whether this inflammation was of traumatic origin, attended by some infectious disease; or, 2, whether the infection was of that mild and mixed type, the puro-mucous; or of the purulent character incited by the staphylococcus aureus; or the gonococcus of Neisser, the latter being the most virulent type of purulent infection.

The advanced stages of these varying types of infection can not be successfully combatted without reference to the character of the infecting material present. It is, therefore, easy to understand why some writers have gone to such pains in describing the form of granular conjunctivitis peculiarly prevalent among soldiers and seamen as, military ophthalmia, of a dangerously contagious type; because, the infection which originally incited the inflammatory changes in the conjunctiva, leading finally to hypertrophy of the papillary membrane being still present, preserves its own proliferating power, and kindles an inflammation in any mucous surface to which it may find access, of identical virulent character.

Piringer concluded, from a series of experimental observations, that the activity of the contagium is precisely commensurate with the stage of inflammatory action present in the infected mucous membrane at the time the matter was taken for inoculation; and he found likewise, that in some instances, pus taken from the membrane in the declining stages of gonorrheal inflammation required from twelve to seventy-two hours, according to the activity of the process at the time of taking the matter for experiment.

In my own opinion, Piringer's observations are defective, because of the uncertain and irregular manner of introducing the infection. Six hours is sufficient time in which to develop, in a previously sound mucous membrane, a decided increase of vascularity and hyper-secretion of mucus, in the conjunctiva, and there is with these symptoms always present profuse lachrymation, and morbid sensibility of the eye to light. In twelve hours pus is nearly always abundant; and the disease may be fairly said to have reached its acme by the end of twenty-four hours from the period of inoculation. With the inoculation of the staphylococcus aureus, more time is required. Forty-eight hours from the period of inoculation rarely finds the disease so well established as to determine its character. In the puro-mucous types of disease, where the infecting material is the well known staphylococcus albus, it is not rare to observe that seventy-two hours elapse from the period of inoculation before the definite nature of the resulting inflammation may be determined.

With these facts before us, it is not difficult to understand how Piringer was led into error in supposing that all pus from inflamed mucous membranes was of the same nature, excepting that it varied in degrees of intensity of action, in accordance with the stage of the inflammatory process in the membrane from which it was taken.

Recognizing trachoma as a local manifestation of a constitutional infection of such mild type as, in some instances, to produce no constitutional symptoms of sufficient severity to attract attention, being characterized in the main by the local occurrence of neoplastic cells in the mucous membranes, even continuing for a long period of time without creating local discomfort, we shall be well prepared to understand the more grave feature of the trachomatous membrane after an acute inflammatory affection of the conjunctiva has run its course. And it is this complicated condition that is so well described by Stellwag as the mixed type of inflammation, partaking partly of the character described as papillary hypertrophy and partly of what he calls the pure granular condition of the conjunctiva, due to the presence of neoplasms resembling frog spawn.

If we are to be rational in our practice, we must never overlook the conditions which have brought about the morbid state we seek to relieve. In the treatment, therefore, of the so-called granular lids, it is of the utmost importance whether we have to deal with the uncomplicated state of hypertrophy of the

papillary membrane following, 1, puro-mucous; 2, the golden-colored purulent inflammation; or 3, the purely gonorrheal type of local inflammation; and, whether in either of these conditions there was preëxisting trachoma in the membrane.

Uncomplicated trachoma may, in persons having an error of refraction which necessitates great strain of the eyes in reading or writing, thereby provoking continued hyperemia of the ocular structures, become a source of local discomfort by giving rise to abnormal pressure of the thickened conjunctiva upon the eyeball; otherwise it may fairly be stated that uncomplicated trachoma so rarely calls for relief, as to escape, in a vast majority of cases, the attention of the ordinary medical attendant.

The treatment to be pursued in the ordinary forms must, of necessity, be generally stimulating and antiseptic, and in the main purely local. While the treatment of trachoma, whether complicated or not, so far as the trachomatous bodies are concerned, is essentially surgical; and to insure against return of the neoplasms, constitutional medication is, in all cases, urgently demanded.

I am thoroughly satisfied from my observation, that trachoma is *per se* the local manifestation of a constitutional infection, just as urgently demanding mercury and quinin as though it were some other form of that miasmatic infection which begets intermittent and continued fevers.

If there is any virtue in the old methods of treating papillary hypertrophy by either caustics or astringents, it has entirely escaped my observation, and I am thoroughly convinced that the mildest forms of stimulating agents, such, for example, as the yellow oxid of mercury ointment well rubbed in, and the occasional use of active stimulants of the non-astringent type, as the solution of bichlorid of mercury, $\frac{1}{4}$ grain to the ounce of distilled water, in combination with 10 grains of chlorid of sodium, or, in the pale, flabby appearance of chronic cases, the crayon of muriate of ammonium, applied by gentle pressure to the surface of the everted lid. Not one of these forms of treatment may be found sufficient to complete the cure in any single case. Sometimes the necessity being apparent for the ammonium, at other times the milder applications being indicated by the high state of vascularity of the projecting papillæ. In nearly all cases of well-characterized papillary hypertrophy, some modification of Pagenstecher's canthotomy must be done to prevent friction of the roughened surface of the lid against the cornea. It is remarkable how rapidly persons subjected to this operation may subsequently be observed to recover, under wisely ordered local medicinal treatment. It is never wise to give to such a patient a prescription for a collyrium, or salve, to be applied at home. No nurse, however skilled or well trained, can possibly possess the discriminating judgment which would be necessary to determine the application necessary from time to time, and there is no plan by which speedy recovery may be accomplished, even by heroic agencies in the wisest and most experienced hands.

Trachomatous bodies in the conjunctiva may be removed by the process of crushing and expression with Knapp's roller forceps, which represent the two cogwheels, between which the membrane is to be caught and crushed; or Noyes' forceps, which represent two smooth rollers between which the membrane is pinched up and compressed; or, by a modification, which I have found most useful. I had Sharp & Smith of Chicago make the crushing forceps with the cogwheel in one side and the smooth roller in the other side. I press the cogwheel high up in the retro-tarsal portion of the conjunctiva, and resting the smooth roller on the palpebral surface, I carefully compress and draw forward the imprisoned membrane in such a way as to squeeze out the gelatinous contents of the trachomatous bodies.

My forceps are made of the combined qualities of those of both Knapp and Noyes. The advantages of one smooth roller and one cogwheel, or grooved roller, require no elaborate explanation. The subsequent treatment after crushing and expression of the trachomatous bodies, should consist in the use of a mild saline collyrium. A favorite formula for after-treatment is this: Borate of sodium, 15 grains; chlorid of sodium, 5 grains; mint water and camphor water, each 1 ounce; to be dissolved and filtered. This may be instilled into the eye every hour, or more or less frequently, according to the accumulating mucus, and the general sense of discomfort in the eye; the patient in the meanwhile taking small doses of quinin and bichlorid of mercury; and after ten days of this kind of treatment, in most young people, the solution of citrate of iron and quinin after meals. Under this general plan most cases rapidly recover; of course, each individual case requires some modification of treatment suited to the peculiar conditions. Whatever plan of local treatment may be determined upon, there are two great principles of science, though commonly neglected, an exact observance of which is absolutely essential to a successful final result.

Surgical cleanliness is a term which implies something apparently beyond the possible comprehension of the average layman, and I fear there are some members of the medical profession who, though well acquainted with the conditions necessary to establish asepsis, neglectfully proceed in violation of these important rules of scientific detail.

No one but a skilled and well trained nurse may safely be entrusted to carry out the treatment of any local inflammation of the conjunctiva, whether acute or chronic, and it is practically impossible for the surgeon himself to administer the necessary treatment. These difficulties are sufficient to account for a vast number of failures in the treatment of the varying forms of the so-called granular lids. Having the patient under perfect control and constantly subject to rigid rules of personal hygiene, with a nurse whose hands are always washed immediately before instilling the collyrium or using the irrigator, never permitting the patient's hands to touch the eyes, the surgeon himself observing the most rigid discipline of his own person both before and after handling the patient, the chances of reinoculation or the fresh inoculation of some new infection is reduced to a minimum. Beside all this, the patient under personal observation as to his daily habits, can be kept in a most favorable state of general nutrition for the rapid recovery of the local inflammation. It is not saying too much, I think, to declare that nine-tenths of the cases of chronic inflammation of the conjunctiva, of whatever kind, receive frequent backsets or relapses from reinoculation of the preëxisting infectious material, or the introduction of some new infection incident to the lack of those hygienic regulations which an institution, under the authoritative control of an experienced surgeon alone supplies.

THE COMMON USE OF GLASSES.

BY F. C. HEATH, A.M., M.D.

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The wearing of glasses is so much more common than formerly that we are often asked to give an explanation. Frequently parents express their astonishment that so many school children wear glasses, a thing almost unheard of when they were young. A recent article on "Superfluous Spectacles" seeks to explain a part of this increase by the unnecessary prescribing of weak lenses "which have only a mythical value."

Are there any good reasons for this increase, or is specialism in this direction running mad like the wild rage for extirpating ovaries, stretching rectums, removing turbinates and snipping the muscles of the eye? There are reasons for the increase in the use of glasses and there is also something to be said as to unnecessary prescribing.

Obviously the first reason for the more common use of glasses is that we have learned to recognize these eye affections and their multifarious effects as we could not in former times. The intelligent and conscientious physician is no longer satisfied with giving anodynes to little or no purpose in protracted or recurring headaches, knowing that their most frequent cause is eye strain, easily remedied by glasses correcting refractive errors or lightening the burdens of weak muscles. Neurologists have learned that nervousness, dizziness, insomnia, some forms of chorea and possibly graver affections are due to eye strain—at least that this will act as an exciting cause where there is any predisposition to such disorders. The subject of reflexes has been overdrawn but oculists have certainly erred less than workers in many other lines. Doubtless many of the symptoms of eye strain commonly called reflex are really part of a general neurasthenia, produced by the great amount of nervous energy consumed in overworking the intraocular and extraocular muscles, but in some cases due to other causes. The favorable results from the accurate adjustment of glasses in those cases in which the eye is either the sole or partial cause of the symptoms are now a part of our every day experience. Before Donder's time such cases went unrelieved, and often, from their sufferings or from imperfect vision, were not only incapacitated for work but also tortured by fears that they were becoming blind. As an explanation of much of the increase in the use of glasses, then, we have the fact that we relieve thousands of sufferers who formerly went unrelieved and give useful sight to countless numbers, otherwise crippled by imperfect vision.

But the question may be asked: "Is not the more common use of glasses due also in part to an actual increase in the frequency of eye troubles?" This is undoubtedly true. Advancing civilization has its disadvantages, among which are overwork of the eyes under unfavorable conditions. With some the desire for wealth and with others the exertion necessary to secure a living in the midst of so much competition, lead to overwork in adults and the children suffer from the crowding methods pursued in the schools. Special trades, like that of the lithographer, requiring continuous attention upon fine work, are particularly injurious. The eye strain from such causes with its suffering and dangers to the eye, sometimes producing such serious lesions as choroiditis, retinitis, glaucoma and cataract, is practically an affection of these bustling times, unknown to former generations. Its remedial and preventive treatment by glasses is highly successful. Much has been written on the production or increase of myopia, or nearsight, from prolonged use of the eyes on near objects, especially under unfavorable conditions. High schools show the worst results—the myopia, in those of Germany ranging from 20 per cent. in the lower to 60 per cent. in the higher grades. Of 1,133 school children examined in New York, less than 4 per cent. were found myopic at 7 years of age but nearly 27 per cent. at 20 years. Von Hippel claims that the removal of unfavorable conditions as far as possible, as a result of these investigations, has reduced myopia in Germany at least 6 per cent. The unfavorable conditions are all things tending to strain or congest the eyes, such as bad air, excessive heat, low desks requiring pupils to bend over their work, light either so bright as to irritate the eyes or so dim as to require straining to see, or light shining directly in the eyes, small or indistinct print, Greek and German text, too long hours of study with intermissions too short and too infrequent, and finally too much written work. Written examinations should not be too frequent—while of value to promote exactness they are very trying to the eyes. Cohn found of 10,000 school children in Germany 1.4 per cent. of pupils in village schools near sighted, and 11.4 per cent. in city schools, attributing the difference in proportion to the fact that the city schools were darkened by the height of surrounding buildings, while the village schools stood alone and received abundant light from all sides. Possibly difference in the hours, terms and methods were also factors in favor of the village schools. Here then is a field where we might lessen the amount of myopia calling for glasses by the same attention to these matters as has been shown in Germany.

Enough certainly has been said to show that increased use of glasses is due in part to actual increase in eye affections.

It remains only to consider the question of "unnecessary prescribing." Here we must make a distinction between the oculist and the optician, or any other persons assuming to prescribe glasses. It is astonishing that any one will intrust a thing of such priceless value as the eyesight to opticians, jewelers, druggists or peddlers, the most skilled of whom know nothing of the diseases or needs of the eye. Yet physicians have often sent patients to these incompetents! An optician may sometimes give a glass that is satisfactory, just as the druggist may do for a sick man, but such work is dangerous and unscientific. These people who make free examinations, so-called, are certain to prescribe unnecessary glasses because they have to sell their goods. The oculist has no such selfish motive, receiving the same fee for examination whether glasses are ordered or not. Besides he stands on the same high plane of professional honor, feeling for humanity and devotion to scientific truth as the great majority of the scientific profession. He may occasionally err in judgment, attributing too much to the refractive error found; he may fail to recognize that such errors do not call for correction uuless they produce symptoms of discomfort or imperfect vision; but his work is usually conscientious and thorough.

The claim has been made that oculists too fre-

quently prescribe weak lenses, "having nothing but a mythical value." Upon this subject Dr. Starkey of Chicago made inquiry of many leading oculists, most of whom stated that they used them commonly and were convinced of their value. Dr. J. L. Thompson said: "The evidence of patients is such in hundreds of cases that I am as fully convinced of the remedial power of these lenses as I am that the earth revolves upon its axis." Many confirmatory cases were cited. My own experience is in accord with this view. Doubtless many refractive errors of moderate degree produce symptoms only when the eye is overtaxed or the system below par. These cases could often do without glasses by resting and building up their general strength, and the writer has had excellent results when this course was pursued. In others the temporary use of glasses proved of advantage. Where patients will not give up work relief can not be obtained without glasses, and in the cases of greater refractive error these are practically an indispensable means of treatment.

Finally, as a counterbalance to the unnecessary use of glasses in some cases, may be mentioned the fact that thousands who do not use them would be better off if they did, receiving the benefits of greater convenience in increase of vision, greater comfort in the relief of eye strain, greater safety to the eye, preserving it from those possible and disastrous effects of strain, retinitis, choroiditis, glaucoma and cataract, and enabling little children, handicapped by imperfect vision and unjustly condemned as backward or inattentive, to compete successfully with their companions.

Therefore, while we hope eye affections may be lessened by greater attention to conditions of work and hygiene in the future, we expect that glasses honestly and intelligently adjusted will be worn quite commonly, and will be considered not as an annoyance or an evil but as a great means of relieving sufferers and increasing their usefulness in the world.

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SOME SUGGESTIONS ON THE MANAGEMENT OF DIABETES.

BY CHARLES W. PURDY, M.D.

CHICAGO.

The writer's views upon the systematic treatment of diabetes have undergone but little essential alterations since last published[1] and therefore an extended or minute review of the subject is not here intended. The object of this paper is rather to call attention to some of the more common errors in the management of those abnormal conditions of the system of which glycosuria is the index. Our present resources for controlling or modifying glycosuria consist in the main of two measures, diet and medication, of which the former so vastly outranks the latter in efficiency that diet may be justly said to constitute our chief reliance. Just one hundred years ago John Rollo first emphasized the important fact that limitation of the carbohydrate foods constitute the chief, if not indeed the only trustworthy, means of controlling or modifying the excretion of sugar in the urine in diabetic states. Although the profession has had a hundred years to refine and put into practice the principle laid down by Rollo, yet if one were to judge from the average diet list now in use, one would almost be justified in the conclusion that the dieting of diabetic patients today has become a lost art. It is true there have appeared within the last twenty-five years a few good monographs upon the subject of diabetes, but unfortunately these do not reach the profession at large. The rank and file of the profession are obliged to look to works on general practice for guidance upon the present subject, as upon most others. Now it does seem to the writer that without exception the sections devoted to the management of diabetes in modern systematic works on practice, so far at least as relates to dieting, are far from reaching the usual standard of excellence otherwise attained in such volumes. While the general principles of management are usually most clearly laid down, too much latitude is generally permitted in matters of deta

It may be stated that diabetes mellitus is a more or less grave condition, depending upon several circumstances, the most prominent of which is the age of the patient. As a rule, the disease as it appears in the young, that is to say, in patients under 30 years of age, is usually a progressive one and that toward a fatal issue. The duration varies from a few weeks or months to four or five years, depending very largely upon its treatment. Careful and judicious management will often give from one to two or even three years comparative comfort, even in those cases over which the shadow of death lingers; but greater hope than this is not as a rule justified in this class of cases. Fortunately there is another and brighter aspect to this picture. In patients beyond middle age the disease often appears in a much milder form, so mild indeed that it may be held absolutely under control by judicious management. Thus as a rule as the disease appears in patients over 50 years of age, and if there be a well preserved body weight, it is not too much to affirm that if they succumb to the disease it will either be due to faulty advice or to their own negligence. Even after 40 years of age the disease usually appears in a milder form, though exceptions to this rule occur chiefly in those of spare habit of body. It is instructive to note that all cases of this class with very few, if indeed any, exceptions if they be mismanaged, or if they be left to themselves without management, will assume more or less quickly the more serious type of the disease and will succumb to it in a comparatively brief period of time.

In the systematic management of diabetes, diet and medication should so far as possible be completely separated. It may be unhesitatingly stated that in these cases in general, drugs rarely do much good while assuredly they often do much harm. Moreover, when diet and medication are employed simultaneously in any given case from the start, the beneficial effects of dieting over the disease are very often unjustly attributed to the drugs employed, and thus it has happened that an almost endless list of drugs have been recommended as specifics for diabetes which are absolutely valueless, nay, worse, they are actually harmful in these cases, often preventing the full benefits otherwise obtainable from proper dieting. Who is not familiar with the stereotyped article on "A new remedy for diabetes" that every few months appears in the magazines and goes the rounds of the medical periodicals? In it the author tells us he has discovered that a certain dose of a well known drug in his experience has reduced the sugar in the urine from 5 down to 2 or 3 per cent. and it may be

[1] Treatise on Diabetes, 1890, F. A. Davis Co. Publishers, Philadelphia.

that two or three cases are cited as proofs, and thus straightway another new panacea for diabetes is launched upon the sea of medical literature. If, however, we peruse such articles closely we will usually note that the author tells us the patient "was put upon a careful diet," which limited to a greater or less extent the carbohydrate foods *at the same time* the new panacea was administered, and we at once have the key to the *reduction* of sugar in the urine. It is altogether safe to assume that had the panacea been omitted and the patient "put upon the careful diet," just the same if not better results would have been obtained.

The first error often made, therefore, in the management of diabetes is the employment of diet and medication simultaneously, The invariable rule in these cases should be to first obtain all the possible benefits derivable from dieting, and for this purpose from four to five or six weeks should be set aside for testing just how far dieting alone will control or modify the excretion of sugar.

As already inferred the main principle in dieting diabetic patients hinges upon the *limitation* of carbohydrate foods. *Limitation* then is the principle, not *elimination*, the latter word often being erroneously employed, because it is not possible to eliminate from any diet list absolutely all carbohydrate elements of the food. We must, however, in many cases approach as nearly to complete elimination as it is possible to do, but in all cases this should be gradually brought about, rather than suddenly. Step by step the more objectionable articles should be withdrawn until a point is reached where further reduction of sugar seems impossible; then and only then should any specific medication be attempted.

By far the most serious and perhaps the most common error in dieting diabetic patients is in the matter of bread allowance. We read in most of our works on practice that these patients may not eat ordinary table bread, but some substitute may be employed, most commonly gluten bread, or some of the so-called "diabetic breads" of which the market is overstocked. If we follow this advice let us see what we shall furnish our patients in the way of a supposedly non-starchy food in their bread supply. Bearing in mind the fact that ordinary home-made bread contains about 45 per cent. of starch, let us see how this compares with the more common diabetic flours and breads upon our markets. The following figures are taken from the analyses made by Dr. Harrington of Boston. The graham wafer, made of graham flour, contains 58 per cent. of starch. The gluten flour of Farwell & Rhines, of Watertown, N. Y., contains 67 per cent. of starch; the special diabetic flour of this firm contains 68 per cent. of starch. The gluten flour of the New York Health Food Company contains 66 per cent. of starch. Dr. Johnson's "Educators," a biscuit claimed to be "absolutely free from starch," contains 71 per cent. of that article. The Boston Health Food Company's diabetic flour No. 1, sold as absolutely non-starchy, contains 62 per cent. of starch. Such are average examples of the many foods in the market which we are advised to allow diabetic patients, and it is almost superfluous to add, although without doubt literally true, that the practice of such advice has shortened the lives of thousands of diabetic patients.

It is not alone the enormous starch contents of these commercial diabetic foods that is so injurious to this class of patients. Gluten bread must of necessity be tough and indigestible in the highest degree, and thus it happens that the digestive mechanism, enfeebled and overtaxed as it usually is in these cases, prematurely fails when such food is submitted to it. The same objection applies to bread made from almond flour, which was first suggested by that very able authority Dr. Pavy of London. The almond contains by weight 50 per cent. of oil which no method yet devised has succeeded in materially reducing in the preparation of flour or meal therefrom. In the writer's experience the average stomach of the diabetic patient quickly tires of bread made from almond flour, and if it be long continued indigestion and collapse of assimilation ensues. A very considerable experience with so-called diabetic breads in our markets has convinced the writer that as yet there exists no substitute for bread worthy of that name, and moreover the advertised commercial articles ordinarily met with are the most pernicious humbugs.

We must encounter the fact that the total elimination of bread from the dietary of the diabetic patient would constitute the greatest deprivation these patients could be called upon to meet. After many patient and laborious trials with so-called substitutes for bread in these cases the writer some years since abandoned them as not only useless but highly injurious. Fully aware of the fact that many of these patients can without injury use a *limited amount* of table bread, while many others can not be made to assimilate the smallest possible amount thereof, the following method was adopted: During the first week or ten days of dieting, the diabetic patient is permitted to have two ounces of his usual table bread (accurately weighed in a letter scale) with his morning and evening meals. At the end of that time, if sugar still be present in his urine, the allowance of bread is further limited to one and a half ounces for his morning and evening meals (3 ounces daily) for another week. Thus each week the allowance of bread is gradually reduced until a point is reached where assimilation of the bread allowance is complete and no sugar appears in the urine, or where sugar still remains in the urine at a point where further reduction by limitation of bread seems impossible. If this method be carefully followed it will often be surprising how relatively large an amount of ordinary bread some of these patients can use without injury, the diet in other respects being properly regulated. It is no uncommon experience with the writer to find the very first limitation to 4 ounces daily of bread to result in complete disappearance of sugar from the urine; and in such cases it is sometimes even possible to increase the daily allowance to 6 ounces of bread, although it is not advisable to do so until after three or four weeks careful dieting, thus allowing the liver to thoroughly unload its store of surplus glycogen. The object in dividing the daily bread allowance into two equal portions, and giving one each with the morning and evening meal is because this insures the longest possible intervals between the ingestion of the carbohydrate food, thus offering better chances of its complete disposal by the enfeebled assimilating powers for this class of foods. It will of course be found that the widest difference exists in the assimilative capacities for bread in different cases. Some as first indicated will assimilate 6 ounces of bread daily without any excretion of sugar, some can not assimilate more than 3 or 4 ounces. Some cases supposedly of the more pronounced type,

as in young subjects, will often assimilate 2 ounces daily, at least for a long time until the natural progress of the disease approaches the point of the assimilative limit. On the other hand in some cases it will be found that a half, or even a quarter of an ounce with the morning and evening meal, will provoke the increase of sugar excretion by the urine. In such cases the use of bread must be totally abandoned by the patient, and the sooner this be done the better.

The advantages of the above method are as follows: The limitation of amylaceous food is systematic and definite, and we know precisely how much thereof the patient is getting in his bread supply. It enables us to determine with precision the degree to which the assimilative powers for starchy foods is crippled in each special case, and this is all important because that degree differs widely in different cases. Having found the capacity in each case, we are often able to supply a very material amount of carbohydrate food, still keeping within the patient's assimilative power for that class of food, and thus the carbohydrate food supplied goes to make up his body weight, enabling us often to maintain a fair balance of assimilation over waste as represented by body weight. Lastly, this method gives to the patient an article of bread that is digestible, a matter that no substitute has yet accomplished.

An error in dieting diabetic patients scarcely less common or harmful than that just considered is the somewhat general custom of permitting *ad libitum* the use of milk; indeed it is not uncommon to put these patients upon an exclusive milk diet. In 1871 Dr. Arthur Scott Donkin published a book in London the title of which was "The Skim Milk Treatment of Diabetes and Bright's Disease." The chemico-physiologic principles upon which this author founded his advocacy and practice of the use of milk in diabetes was speedily shown to be false by his own countrymen more eminent and expert than he; and moreover, Dr. Donkin himself as a careful scrutiny of his own published records will show never cured a case of diabetes by this method, nor obtained anything unexpected or remarkable by this practice. a fact that the profession at large seem not to have realized. A doctrine and practice so incomparably simple as the lofty practice of drinking whey, seems to have exercised the most astonishing fascination over both the lay and professional mind, since although the sage has assured us that "time cures all errors" yet twenty-five years has apparently made but little impression upon this false doctrine and its too many desciples, for have we not almost daily presented to our observation some wretched victim of this starvation practice?

Milk is by no means a safe article upon which to sustain adult life indefinitely, but with subjects who possess considerable surplus of fat, life may be prolonged upon it for some time provided the milk be of good quality. It was left to Dr. Donkin, however, to conceive the unique idea of first depriving the milk of its more highly nutrient qualities—the cream—before submitting it for use to diabetic patients, but he left them about one ounce of carbohydrates in each pint (lactine) possibly by way of sharpening the appetite for their allowance of whey. If we examine the simple chemic problem of the composition of ordinary cow's milk, we find that each pint contains on an average 369 grains of nitrogenous matter; 350 grains of fat; 468 grains of lactin, and 72 grains of salines. Now this 468 grains of lactin (about one ounce) is a milk sugar which resides chiefly in the whey, and as Dr. Pavy has long since shown this carbohydrate "comports itself in the intestinal tract precisely as does grape sugar." The "Skim Milk Cure" therefore aims at furnishing to diabetic patients from a quarter to half a pound of sugar daily in a watery vehicle, which practically contains nothing in addition save a little saline and nitrogenous matters, both of which are for for the most part waste materials. No adult person in health could survive indefinitely upon such an exclusive diet, because it would result in slow starvation, and in diabetic states death would be much more rapidly induced since the ingestion of such amounts of sugar would hasten inanition.

It has been contended, however, by some that as a matter of experience the "milk cure" has exercised a controlling influence over sugar excretion in some of these cases, and although it is not to be denied that in a few isolated examples in a certain type of cases soon to be considered such is apparently the case for a time. Yet the same and by far better results are always obtainable by systematic dieting on more liberal general lines which furnish to these patients all the elements essential for ample nutrition. The type of cases above referred to is of the mildest order, such as is seen in people over 50 years of age with very full habit of body. Careful observation will invariably reveal the fact that these subjects are heavy eaters, and furthermore, their histories will show that for the most part they have been large consumers of carbohydrate foods. Glycosuria in such cases merely represents the overflow of untransformed glycogen resulting from enormous overtaxation of the function of the liver. Such cases rarely possess the nervous elements of true diabetes in its more severe forms, nor yet that primary defect in the functional capacity of the liver, which is so prominent in intractable forms of the disease. In short such cases would be ranked by authors under the division of glycosuria. It is in such cases that sometimes the "milk cure" apparently succeeds, and in such cases only, because in such cases the "milk cure" constitutes a method of enforced fasting, and although considerable carbohydrates are furnished with the milk in the form of lactin, yet the enormous curtailment of carbohydrates in the general food supply in these patients of heavy appetites, reduces the balace to comparatively moderate proportions, and the liver relieved from its long overtaxation assumes a nearly normal glycogenic function, and thus sugar secretion may become largely dimished and in some cases even cease.

Bouchard has shown us the great importance of limiting the *quantity* as well as the *quality* of the food in many of these cases, by pointing out the highly instructive fact that during the siege of Paris a number of his patients lost their glycosuria, though previously, when their food supply was ample, he could not accomplish the same result by the most careful selection of the quality of their food. As already indicated, then, the benefits desirable from the use of milk even in this special and limited class of cases, can be far more desirably accomplished by a regulation of the diet which will offer a more varied and agreeable food supply, as well as one that offers a wider and more ample nutritive range. The great advantage of the latter is that it prevents the inevitable loss of weight necessarily incumbent upon a milk diet.

When we come to encounter diabetes in its more pronounced form, such as we usually find in the young,

and nearly all spare subjects regardless of age, the milk cure will be found to aggravate all the symptoms, and to hasten the progress of the disease toward a fatal issue. A search through Dr. Donkin's records and those of his followers for exceptions to the above rule would prove practically a failure; and if the experience of the writer is entitled to any weight, it shows in upward of one thousand recorded cases of diabetes no exception to the above rule.

It may be gleaned from preceding considerations that another error not uncommon in the management of diabetes is the allowance of food in quantities *ad libitum*. The amount of food that many of these patients naturally consume is very large; added to this the intense hunger created by the disease and, if unrestrained, the amount of food consumed becomes indeed prodigious. Then too, the lay mind in general seems firmly wedded to the belief that the more food the average individual consumes the better it is for him. This may be justly characterized as one of the greatest errors in regard to man's physical welfare in general, and in diabetes the force of the objection becomes more than doubled, because the very main spring of the disease consists of the loss of balance of assimilation over waste. The careful regulation of the *quantity* of food of the diabetic patient should always, therefore, be ranked in importance as second only to the *quality* of the food itself, and here, as elsewhere, the strictest rules should be enforced.

Before quitting the subject of diet, it may be noted digressively that our own continent furnishes a few permissible articles which these patients consider among their luxuries, and which are not usually found in European lists. The most prominent and perhaps the most important in value of these is green corn on the cob. The average diabetic patient may include this justly considered American luxury in his diet list not only without injury but, with certain precautions, with great benefit. Indian corn stands almost at the head of the list of cereals in point of fat composition, while its sugar composition is very low (4 per cent.). Its percentage of starch is very high (67 per cent.), which would at first seem to debar it from use. Experiments have demonstrated the fact, however, that if green corn on the cob be used by diabetic patients before the kernel becomes hard and ripe (before the starch granule is formed), it is practically harmless to these patients and, as a glance at its composition will show, it is highly nourishing. By directing, therefore, that green corn be eaten while yet the kernel is soft and *slightly milky*, an excellent article may be added to the permissible list, and one that the average diabetic patient, especially if he be an American, will prize very highly.

With regard to the use of beverages by diabetic patients, observation would seem to show that altogether too much latitude is permitted in this direction, especially in regard to the use of alcoholics. With the exception of spirits, clarets, Rhine wine and American wines of the last named type, they nearly all contain large amounts of sugar. The writer's analyses of a large number of the alcoholics in our market give the following results: Beer contains from 4 to 6 grains of sugar per ounce; porter contains from 6 to 7½ grains per ounce; champagne contains from 12 to 48 grains per ounce; sauternes from 10 to 12 grains per ounce; the sweet wine class ranges from 10 or 12 for sherry all the way up to 140 grains per ounce for Malaga. It will therefore be readily observed that it would be an error of the first magnitude to permit diabetic patients the indiscriminate choice of alcoholic beverages, since they could scarcely escape hitting upon one that would furnish a large amount of sugar, and that in its most pernicious form. If the diabetic patient really needs alcoholics—and such cases are the exception, since as a general rule they are harmful—the choice should fall within the narrow limits of clarets or the Rhine wine type, or possibly a little spirits.

With regard to the treatment of diabetes by the use of drugs, we shall be called upon here to meet strong prejudices. It may, however, be confidently stated that when employed as specifics, their use can not be too strongly condemned, since without doubt they do more harm than good. Indeed, it may be laid down as a rule that unless medication be aimed purely at supporting some organ or function that the disease tends to impair, it is more likely to prove injurious than otherwise. The failing digestion may be aided by such agents as pepsin and pancreatin; the nervous elements of the disease may be in a measure favorably influenced by such agents as arsenic or strychnin, etc., but such measures will readily suggest themselves to the mind of any intelligent physician on general principles as occasion may require, and therefore they need not be dilated upon here. We have to do here with drugs capable of doing injury in these cases, of which we may take opium and its preparations as one of the prominent examples. Opium holds out no hope of cure to the diabetic patient, even in the mind of its most sanguine advocate, nor can it be successfully maintained that it does no harm to the organism in these cases. To those whose experience it has fallen to witness the absolutely withering effects of the habitual use of this drug, not only over the entire physical organism, but also over the higher—the intellectual and the moral faculties—to such we must indeed assign a courage "worthy of a better cause" if they can calmly consign the remnant of the lives of these patients to such a blighting destroyer of both body and soul. In the writer's experience opium, in any and all its forms, not only adds to the sufferings and discomforts of these patients, but it also hastens their progress to earlier graves. It may be conceded for argument's sake that heavy doses of the drug slightly retard sugar excretion in some cases, but in so doing it aims at the very mainspring of nutrition and assimilation. It increases the thirst, often causes the loss of sleep, aggravates the constipation and completely wrecks the already weakened nervous organization. Of the antipyrin and salicyl series of drugs which have been lauded as specifics for this disease, it may be said without exception that they often cause albuminuria, and always aggravate such conditions, when present, to such a serious extent as to provoke serious and often irreparable nephritis. Of the remaining long list of specific drugs which have been extolled for the treatment of diabetes it would be unprofitable to consider them in very minute detail; it is perhaps admissible that some of them are capable of doing less injury in these cases than opium and its preparations, but this is the most that can be said in their favor.

The importance of sharply separating the diet and medicinal treatment of diabetes has already been touched upon in the beginning of this article, but there is a phase of this matter that may prove profitable to glance at in conclusion. By beginning the

treatment of diabetes with drugs the mind of the patient, ever prone to believe in the occult influences of medicine, quickly learns to rely upon his tablet or drops, rather than upon the more potent influences of a carefully regulated diet, upon which in the main his physical well-being depends. Dieting requires of him so much in the way of resolution and effort; while the pellets or drops exact so little of him of either, that naturally he turns for relief to that which appears to him the easier course: and the latter he most assuredly will do unless his mind be strongly impressed with the importance of pursuing the more difficult but more promising course. These patients have a right to be fairly dealt with when appealing to a great and dignified profession for advice concerning questions which involve their existence, and therefore they should be taught from the start that their lives will depend largely upon their own individual efforts. They should be taught that the amplitude of their comfort, as well as the span of their years, will depend mostly upon a systematic method of dietng, and after having handed over to them this important key, they will have it in their power to open or to shut the door to their future, so far as this can be compassed by human power.

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THE MODERN PATHOLOGY AND TREATMENT OF ACUTE OTITIS MEDIA.

Read before the Chicago Academy of Medicine, November, 1896.

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CHICAGO.

It is not going too far to say that the treatment of acute middle ear disease largely in vogue today is, in many ways, nothing more nor less than an elaboration of that which was recommended for the same condition by our great medical genius Hippocrates more than 2,000 years ago. It would seem that ever since those ancient days, our medical fathers have striven to establish, in a more or less empirical way, their individuality upon the most remote minutiæ. For instance, on one side we have a large group of those who believed in cold, on another those who believed in hot applications. As a third class we may array those who strove to establish the proper indications for the employment of both heat and cold. And then on every hand our attention is arrested by the eternal "drop," from milk (preferably woman's milk), hyssopum, ox-gall, camomile tea, down to the sulphate of zinc solutions of these latter times, always more or less empirical and doubtless always more or less harmful.

Indeed, although DuVerney, in 1683, recommended camomile decotions for acute ear troubles, it has clung to the laity to this very day. It is largely used among the Polish and German people, so that I have grown to recognize those ears which have had this substance dropped into them, by the sediment of gum adhering to their tympanic membranes. I believe it wise in teaching to condemn drops broadly. In acute conditions they can only be used in the sense of a fetish or amulet. We are forced to this conclusion by considering the conditions as they here exist. First, in all except those rare cases in which violent necrosis of large areas of the tympanic membrane takes place, the perforations are at first very small, measuring in diameter from that of a hair to that of a pin-head. The surface tension of a drop of water alone or a column of water which the external auditory canal will accommodate, will prevent its penetration through such a small opening, let alone solutions with greater specific gravity. And even if such solutions did enter beyond the perforation, what can we hope to accomplish? Entrance can take place only by the solution diffusing more or less with the contents of the tympanic cavity, and when this occurs we have merely the formation of an insoluble precipitate of the secretory contents of the cavum in the case of anodynes and antiseptics. That this is bad treatment will appear later on.

Cataplasms, detergents, leeches, etc., have in turn been extolled by one and decried by another. The general treatment too has varied, from the purgatives and emetics of DuVerney to the opium and quinin of the present day. In the meantime the main issues have been lost sight of.

Mark you, I do not wish to hold up to ridicule the therapeutics of our forefathers. Far from that, I realize that the history of otology, like the history of all other things, is one of development. Step by step we have marched on to a larger comprehension of the various manifestations of acute infection of the structures within the ear. What I do wish to insist on is, that as regards the ear, therapeusis up to the very recent past has not kept pace with pathologic knowledge. And it seems to me a fit time to strike out into new paths as regards the treatment of acute middle ear disease; to endeavor to follow a more rational mode of action in the light of the advancement which has been made in bacteriology and pathology of acute otitis. In doing this we must entomb some pleasant fancies mayhap, but the discomfiture which this causes will be amply compensated for by the more satisfactory results of treatment.

Clinically we divide the inflammatory conditions of the middle ear into acute and chronic catarrh, acute and chronic suppuration, etc., and these again into mild and severe forms; but the lines which divide these types are not fixed, for it is a common experience to see one form passing into another. Especially is this so as regards acute catarrhal and suppurative otitis. Maggiora and Gradenigo after examining bacteriologically twenty-nine cases of middle ear inflammation came to the conclusion that the clinical division of otitis into suppurative and catarrhal forms is not justifiable from a bacteriologic standpoint But it will be the endeavor of the writer to demonstrate that the clinical division has a well marked foundation pathologically if not bacteriologically.

Whatever the inflammatory type, catarrhal or suppurative, pathogenic organisms play the most important etiologic rôle. The germs most frequently present in the exudate are the dipplococcus pneumoniæ, streptococcus pyogenes; less frequently occur the staphylococcus pyogenes albus and aureus, the pneumo-bacillus of Friedländer, the bacillus pyocyaneus, staphylococcus cereus albus and micrococcus tetragenes. Lately Pes and Gradenigo have found the bacillus pyocyaneus as an unmixed infection. The studies of these authors as well as those of Gessard and Chasrin with this microörganism prove that it is capable of producing local as well as general infections (the so-called "*maladie pyocyanique*"). Microörganisms are seldom

found in pure culture. Kanthack out of thirty-one cases of acute otitis, examined before the perforation had occurred, found pure culture of diplococcus pneumoniæ only three times. The staphylococcus pyogenes is most frequently found as the mixed infection.

Route of infection.—The tympanic cavity may be infected by way of

1. An intact drumhead, as in erysipelas, furunculosis.

2. Through a perforation of the tympanic membrane, augmenting always an existing inflammation.

3. By way of the circulation. 1, in the congenital otitis media accompanying infectious diseases in utero, variola, recurrens, typhus, diphtheria (Moose), etc.; 2, in the same diseases occurring later in life; 3, in endocarditis (Trautmann).

4. Via the tuba Eustachii. 1, indirectly by way of the lymphatic interspaces of the connective tissue; 2, directly, by continuity of the mucous membrane, and this is the most common way; 3, through the lumen of the tube, as in forcing infection-laden mucous into the ear, in coughing, vomiting, douching, etc. It is said that infections may reach the middle ear by way of the fissura petrosquamosa, and Gradenigo in a case of cerebro-spinal meningitis has found the same microörganisms in the tympanum about the region of the canalis Fallopii as were present in the meninges.

Apart from the peculiar pathogenic character of the various microörganisms, there are other factors which determine the type of an otitis. In other words, the same organism may, under different conditions, give various types of inflammation. This is dependent on the intensity of virulence, the number of organisms, the resistence of the tissues, the rapidity of invasion. On these data Moose has divided the resulting inflammation into three catagories:

1. Those cases in which a relatively small number of organisms gain an entrance to the tympanum through the lumen of the tube and produce there, by a mucoid metamorphosis of the cell protoplasm, the secretory form of middle ear catarrh, which, without treatment, may exist for months or years without suppuration occurring. Suppuration supervenes only when the organisms increase in number on account of a change occurring in the nutrient media of the mucous membrane from taking cold, injury, or when additional organisms are forced into the middle ear.

2. Those cases of hermatogenous invasion which cause infiltration of numberless polymorphous wandering cells in the mucous membrane as, for example, in measles, scarlet fever, diphtheria, etc. Each focus is inclosed in a fibrinous network causing the mucosa to become hyperplastic. In this form there is no tendency to suppuration. Instead, the microbian product of metabolism may be exerted to produce changes in bones, necrosis of the blood vessels, etc., but metamorphosis occurs in the end without the formation of pus. The most probable cause of this is a relatively small number of microbes of attenuated virulence.

3. Cases in which suppuration occurs, the same being divided into: 1, those in which suppuration is slight without perforation; 2, those in which suppuration is profuse with perforation; 3, those in which the onset is rapid, the suppuration enormous, with destruction of large areas of the tympanic membrane and exfoliation of the ossicles.

I will not consume your time with well known macroscopic and microscopic appearances of an acutely inflamed mucosa. There is little difference between that lining the ear and that found elsewhere in the body with, perhaps, these differences: The glandular element is scant in the otitic mucosa, and the membrane here serves the double function of periosteum and mucous membrane. The mucous of the cavum is largely elaborated by the pavement epithelium; the latter peculiarity explains the proneness with which otitic inflammations result in necrosis.

Now, all experience proves that the purely catarrhal as well as the form of otitis media may be caused by the same microörganisms, and I believe that still another factor always enters into the determination of the type of otitis than those enumerated by Moose, and that is the route of invasion. It is my opinion that the difference is altogether due in a large majority of cases to the mode of invasion. That is to say, when the invasion is hermatogenous we have suppuration. When the invasion is from the surface, *i. e.*, via the lumen of the Eustachian tube and remains superficial, we have a catarrhal inflammation. That a purely catarrhal otitis may become purulent there can be no doubt, and when this does occur it is likely that the substrata of the mucosa are invaded either through the circulation, as a general infection, which is relatively rare; from the pharynx, through the lymph spaces of the tuba Eustachii, which is less rare, or from the surface of the mucosa, the superficial protecting epithelial cells having been destroyed, though this is not a *conditio sine qua non*. I believe that when we have a purulent type of discharge we may be sure that the infection is affecting the substrata of the mucosa.

In approaching the treatment of acute otitis media, let us consider the factors which confer immunity in regard to the invasion of the structures and study, if possible, the measures which nature adopts in arresting such invasion. The question arises at once: "Can we regard the normal tympanum as an aseptic cavity?" Though there have been attempts made to prove that it is aseptic, I hesitate to so believe. When we consider the close relationship which exists between the naso-pharynx and the ear our doubts are excusable. That it possesses rather strong aseptic powers is proven by those cases of known asepticity which recover in a few days. The truly aseptic cavities, such as the joints, plura, etc., do not so react. Indeed, in order to retain the power of resisting microbian invasion it would appear to be necessary that that power be continually exercized. That such a power is possessed by the nasal mucosa would seem to have been proven by the researches of Thompson and Hewlett, and that the same attribute is possessed by the mucosa of the tympanum is highly probable. In what does this bacteriocidal power reside? From observations which I have made on two cases of hydrops ex vacuo of the tympanic cavity, I am led to believe that it largely exists in the secretion itself. The external auditory canals of these cases were carefully sterilized with sublimate packings for two days and after paracentesis the clear, somewhat tenacious mucus was collected in sterilized capillary pipettes. A drop of this transferred to a coverglass and placed in a cell will remain sterile until it quite dries up. A drop inoculated with an attenuated culture of staphylococcus pyogenes aureus and kept at a brood temperature in a moist atmosphere was found sterile after ten hours. This germicidal power is, however, easily

destroyed. For instance, if, after the first four hours, additional staphylococci be added, or if we may mix with it at the beginning about one-fifth by volume of egg albumin the bacteriocidal powers fail. A fraction of a drop of 1 per cent. solution of zinc sulphate will produce the same destructive results.

The treatment which I will here outline has been followed during the past two years in my service at the Michael Reese Hospital, at the Post-Graduate School and in my private practice. It is based on principles first advanced by Schwartz and later Pes and Gradenigo.

Local bleeding has been carefully eschewed. I regard cataplasms as not only of doubtful service but actually harmful. They denude the skin of its protective coverings, and thus open up new portals for the entrance of infection. And if a mastoid operation should become necessary the dangers of sepsis are increased by the raw suppurating surface left by the blister in the very field of operating. Further, I am far from being convinced that they have any marked influence on the pain or course of the inflammation.

I regard the employment of cold as of distinct worth in many cases. This is employed by means of a Leiter's coil or a common ice bag. The ordinary condum is a very good form of bag, being light and flexible, and on account of its peculiar shape especially adapted for coiling around the mastoid region. Heat may be employed, if deemed necessary, by applying hot antiseptic fomentations or the sand bag.

Anodynes and all other drops have been abandoned for reasons already mentioned at the beginning of this paper. That anodynes are absorbed at all when dropped into the ear is doubtful. That they are infectious is certain. Therefore, as our whole endeavor is toward asepsis they have been abandoned. Narcotics for the relief of pain are best employed internally or hypodermically. Syringing has also been proscribed for reasons already mentioned in speaking of drops. Before perforation occurs irrigation can do no good as a means of cleansing and antisepsis in the middle ear, because the intact tympanic membrane closes off the cavity from the external auditory canal. The external auditory canal may be rendered aseptic much more readily by a moist dressing. It is my experience that irrigation, as a means of applying heat or cold for their antiphlogistic or quieting effects, is not well borne, that is, in a number of cases it has added to the pain and increased the congestion. Beside, an apparatus which will enable us to use continuous irrigation in the external auditory canal is very cumbersome. The wetting of the bed and the patient is almost unavoidable, especially when the patient is young. *Intermittent* hot irrigation has proven harmful in my hands. Occasional syringing with sterilized saline solution has been allowed to clear the external auditory canal when the secretions take on a cheesy character which accumulates about the walls and membrane. In this connection I would like to exhibit a syringe which I have had made for me by McElroy. It is of glass, which may be rendered aseptic by boiling. In addition it has a removable nozzle. By this device the nozzle, which is the only part in danger of infection, may be changed after each time it is used. Another point in its favor is its extreme cheapness.

Politzerization is never performed in acute otitis media, either before or after perforation. I regard the procedure in these cases as dangerous, as by it fresh organisms are probably driven into the ear or into the mastoid antrum each time it is performed.

To my thinking, the blowing of the contents of the Eustachian tube into tympanic cavity is not only unreasonable, but in a high degree dangerous. The mucous purulent contents of the tube may drain off into the pharynx; indeed, the ciliary movements of the epithelium lining the tube renders this quite easy. Why, then, force the more or less septic mucus into the middle ear, whence it can escape only with the greatest difficulty? If our modern observations are correct, and we accept the dictum that the violence and chronicity of otitis is largely due to the amount of secondary infection, are we justified in supplying this very infection-bearing material by our Politzerization, in order to accomplish a passing reëstablishment of ventilation of the middle ear? Surely not. I do not believe we are warranted in doing so even after perforation has occurred. With a perforation it has been said that by Politzerization we aid in emptying not only the Eustachian tube, but also the middle ear by driving the contents into the external auditory canal. The same objections are as valid here as they were in regard to Politzerization before perforation. We unnecessarily run the risk of forcing septic matter from the tube into the middle ear. As regards the discharge, that may be much more readily evacuated from the cavum by means of the capillarity of an aseptic, or better, an antiseptic gauze drain.

Politzerization is used, albeit with great care, after the discharge has ceased, the perforation closed and due attention paid the condition of the nose and nasopharynx. If an inflammation persists here after closure of a perforation, I substitute Delstanche's rarefacteur, inasmuch as it accomplishes almost as much as Politzerization in preventing adhesions and anchylosis. If there are indications of a tendency toward adhesions before closure occurs, I employ tubal injections of vasenogen with external massage by means of the rarefacteur or the latter procedure alone.

If fever is present the patient is kept in a recumbent position when possible, although I have had a number of ambulatory patients with temperatures of 99 or 100 degrees F. who made satisfactory, recoveries. Obstipation is most usually relieved by the mild chlorid, 5 to 10 grains, combined with an equal quantity of bicarbonate of soda. When we have seen the case soon enough we have never waited for spontaneous rupture of the drumhead.

Paracentesis has in our hands given the most satisfactory results. We regard as positive indications for its performance in acute troubles, pain with or without fever, and the demonstrable presence of fluid in the middle ear. As negative indications, 1, the presence of fluid in the middle ear without pain or fever; 2, pain, continuing for twenty-four hours with congestion, but without fever or the demonstrable presence of fluid.

The strictest antisepsis should always be observed. If possible the auditory canal is packed with an ordinary dressing for as long a time as possible before the operation. This moist dressing will be the means of conducting the heat or cold of applications applied externally to the deeper structures. If this is not advisable the canal is carefully swabbed out with sublimate, 1-1000, immediately before the operation. The point which I regard with the greatest favor for incising the membrane is along its inferior circumference, a fraction of a millimeter from its margin.

Incision.—This is the most dependent part of the cavity and gives the greatest chance for the escape of the fluid contents. In skilled hands there is no danger of injuring the fenestra rotunda. With adults anesthesia is unnecessary. When necessary in children ethyl bromid is used. After the paracentesis the discharge and blood is carefully swabbed away by means of sterilized cotton pledgets. These pledgets are kept constantly on hand and are prepared in the following manner: Common toothpicks are used as carriers and the ends of them wrapped with absorbent cotton. Test tubes are filled with these, and the tubes stopped with cotton as is done in preparing them for bacteriologic purposes. The whole is then sterilized by means of dry heat. In this way we have always at hand thoroughly sterilized swabs. The external auditory canal is then packed with a strip of sterilized gauze one-quarter to one-half inch broad, care being taken that it barely touches the membrane. As our view of the drum-head is shut off as soon as we introduce the end of the gauze into the auditory canal, I have devised a probe for packing the gauze. It is graduated in millimeters, and by taking the measure of the depth of the canal before introducing the gauze we can see at any time to what depth the gauze has been introduced. It is also roughened on the end so that it more readily catches the gauze. We have used iodoform, sublimate and boracic gauze. Iodoform gauze is irritating to individuals and objectional on account of its odor, but on the whole it has been found the most satisfactory. The naphtholated chinolin gauze of Haug would seem to be especially suitable for this purpose as pointed out by Fougeray. The gauze contains 5 per cent. chinolin and 2.5 per cent. naphthol. This combination forms a salt which is deodorant, is highly antiseptic and soluble in pathologic fluids.

After the gauze is in place the vestibule of the auditory canal and the conchæ are packed with sterilized cotton and the whole is held in place by collodion applied from the edges of the cotton to the skin. It is very remarkable what an enormous amount of fluid may be extruded in some cases after such a dressing. Frequently the dressing becomes saturated twice or thrice daily. In these cases it were better to put on a voluminous external dressing held in place by a bandage.

In fact, by paracentesis and the subsequent antiseptic dressings all the indications for the relief of acute otitis media are met. If there has existed a diminished atmospheric pressure paracentesis equalizes this as speedily as Politzerization. The congestion is reduced by the local hemorrhage necessarily accompanying the operation. Pain is more effectually relieved in this way in the majority of cases than in any other. The cavum is continuously emptied of its contents by the capillary attraction of the gauze drain, while additional germs are prevented from invading the cavity from the external auditory canal.

While I am unable to give comparative statistics of this and other methods of treatment, I can say that by our mode of treatment the course of all cases of acute otitis media is shortened and the number of cases which go on to chronicity is greatly diminished. Surely complications such as those necessitating operations on the mastoid are very much reduced. And there is a sense that those patients treated by this method are much less liable to recurrent attacks.

DISCUSSION.

Dr. ADOLPH GEHRMANN—To me, the interesting point about a subject of this kind, is the relation of bacteriologic infection to all of the mucous membranes, whether the mucous membrane of the ear, the throat, or of the stomach. It is practically impossible to have an infection with one particular kind of microorganism, because we have an open space which affords access to the ear and other surfaces where bacteria of all kinds are present at all periods. Infection through the blood, deep down under the mucous membrane, can take place, and can localize itself as an infection by one particular species of organism. The cultures, as a general thing, show mixed varieties, a number of species being present. That the infection should give such great differences clinically is a remarkable part of the whole pathology of mucous membrane infection. We will find sometimes that bacteriologically the organisms are the same, but the differences clinically are marked indeed, especially in the throat. This is true with some well known organisms. The diphtheria organism can give the widest clinical differences in its action on the throat, and still under the microscope, bacteriologically and experimentally, the cultures obtained will be practically alike. Just why this takes place has not been fully explained, but it is due probably to the resisting powers of the cells or fluids of the blood serum which are transuded through the mucous membrane. Infection of the middle ear, showing a difference clinically, I should think would not depend entirely upon the character of the fluid which is excreted, but largely upon the particular species of organism which is localized and which is the infective agent. If we have those organisms which produce suppuration, the chances are suppuration will be the clinical symptom. If we have organisms in pure cultures, which do not produce suppuration, or in combinations among themselves, a serous inflammation or an inflammation without the formation of much pus, will be the clinical symptom. The causes of suppuration are due to toxins that are produced, which are so irritating to the white blood cells and fixed tissue cells as to be positively chemotactic and cause a collection of leucocytes and multiplication of the tissue cells. We may have infection with certain organisms with various forms of streptococcus, which would not lead to extensive suppuration, yet such fluids would be found to contain a good many pus cells in them, as well as a good many epithelial cells. When we have pus infection the prognosis is most serious, as the process is more extensive and causes greater pressure. If the bacillus coli communis is found in the middle ear infection suppuration would be the clinical symptom.

Dr. FREDERIC D. OWSLEY—I have listened to Dr. Pierce's paper with a great deal of interest and I congratulate him on the grace and ability with which he has presented his views. From a pathologic standpoint I have only the highest commendation for his paper, but the method of treatment recommended I can only partly indorse. With his belief in the efficacy of cold and the uselessness of medicating the tympanum by means of drops I heartily agree.

I wish to call attention to the fact that frequently good results are not obtained from the use of cold, because it is not used intelligently; it is either not applied long enough or vice versa. Experiments have shown that cold applied continuously will cause contraction of the muscular coats of the blood vessels for between five and seven hours; if continued without intermission over that length of time, it will produce paralysis of the muscular coats with dilatation. My plan is to apply cold continuously for not over four hours, an intermission of two hours, and then a reapplication of cold. I can not agree with Dr. Pierce in his recommendation of paracentesis in cases of acute otitis media. I do not believe it is warranted except in those cases where the local appearances are such as to lead us to believe that there is pus in the cavity. In all text-books on the subject there is a distinction made between acute otitis media and acute suppurative otitis media. In the first mentioned condition, I do not believe that paracentesis is justifiable, except in those exceptional cases where the pain is so intense that it can not be controlled by any other means.

In the suppurative form, which is indicated by local conditions of the tympanic membrane, of course paracentesis is indicated. I do not agree with Dr. Pierce in his condemnation of Politzerization in otitis media. In my hands it has been efficacious in the majority of cases, and together with proper antiphlogistic measures it has prevented suppuration and perforation. Where suppuration and perforation have taken place, I do not think it wise to dispense with Politzerization as a means of emptying the cavity of its purulent contents.

Dr. WM. H. WILDER—I do not think one is justified in condemning the application of heat and then commending the application of cold in cases of acute otitis media. I am somewhat skeptical about the reduction of temperature or any

influence upon an acute inflammatory process in a part so deeply situated as the middle ear by the application of cold to the mastoid region, as I understand Dr. Pierce advocates. The application of heat, on the contrary, is usually made by the method of irrigation in these cases of acute otitis. By throwing a gentle stream of warm water into the external auditory meatus and allowing it to come in contact with the tympanic membrane, you bring the heat to bear directly upon the inflamed part, or as nearly so as possible; whereas it would be injudicious to apply cold in the same way, as it would probably increase the pain very materially. Unquestionably the application of heat to the tympanum by irrigation relieves many cases. It is an old remedy, recommended by the most eminent authorities on the subject, and by its early use the inflammatory process is frequently checked, the pain relieved and the necessity of an operation thus avoided.

I heartily endorse the Doctor's views in regard to paracentesis in certain cases. I think where the pain is not relieved by the application of heat, that paracentesis is indicated, particularly if there is any bulging of the membrane showing that there is considerable effusion into the tympanic cavity. In such cases the operation affords prompt relief from the pain. But even with that, in some cases permanent relief is not afforded unless we can empty the tympanic cavity, and one of the most efficient ways of doing this is by mild Politzerization, and I can not agree with the Doctor in his condemnation of this well tried method, and I do not see in it the dangers that have been referred to by others. It has been well said that the mucous membrane of the tympanic cavity has bactericidal power, and therefore the danger of further infecting a cavity already septic by sending air into it from the pharynx is far over-balanced by the good obtained by forcing out the exudate that is there. It does not escape so easily after simple paracentesis. I have had cases where nothing short of Politzerization would force the material out of the opening that was made in the membrane. Furthermore, the opening will often close soon after the operation, and the wound will be healed before the cavity has been emptied of the exudate. It has been my practice in these cases, especially where I find that the fluid in the tympanic cavity is sticky and will not easily escape, to resort to Politzerization immediately after paracentesis, and so far I have no reason to regret it.

Dr. WM. L. BALLENGER—Dr. Pierce is to be congratulated on the pathologic and bacteriologic portions of his thesis. Much is therein stated that places the treatment of acute ear cases upon a rational basis. As to paracentesis, as advocated by Dr. Pierce, I wish to take some exception. The cause of the pain in middle ear inflammations is due to the fact that the Eustachian tube itself is closed either by reason of swelling or because of the tenacious mucus which has plugged it. The logical treatment should endeavor to establish a patulous condition of the Eustachian tube. In treating cases of otitis media, we must not think of treating this condition *per se;* we must think of inflammation which probably involves more or less the nasal and naso pharyngeal spaces or cavities. The otitis is simply one point of the inflammation, the one which causes most of the pain because of the isolated position of the cavity. If we wish to promptly relieve these acute conditions we must relieve the general catarrhal inflammation which is in close proximity to this cavity. We will find this particularly in the vault of the pharynx—a post-nasal catarrh, or possibly there are adenoid vegetations obstructing the Eustachian tube. If these conditions are relieved, as they can be, more or less, by astringent and aromatic washes, we do a good deal toward the immediate relief of the middle ear catarrh. Mild Politzerization in the less severe cases of middle ear inflammation will be tolerated and followed in most cases by marked relief. As to the danger of introducing other germs into the cavity by this method, Dr. Pierce has possibly overdrawn it a little, because the Eustachian tube is there for the purpose of aerating the middle ear, and there can be no particular harm in resorting to Politzerization even while there is inflammation present.

Dr. EDWARD T. DICKERMAN—The preceding speakers have differed very materially with the essayist, and I rise to not only sanction everything he said, but to emphasize one or two points. With reference to heat and cold, I shall not discuss this phase of the subject. Both have their place. There are absolute indications for paracentesis, and when it is done, it should be done thoroughly, the puncture being made in the posterior inferior quadrant close to the bony insertion. This operative measure is done for two purposes. If there is a catarrhal condition with an exudate, it is done to relieve the pressure produced by the exudate. If a purulent condition exists, paracentesis is resorted to to drain the cavity, as we all know the indications for operating on any cavity in which there is pus, is to effect drainage, and this can only be accomplished by paracentesis. I congratulate the doctor on the forcible manner in which he has brought forward the aseptic and antiseptic treatment of this condition. There is no disease in the category of medicine that has been so much abused as that of otitis media, and the various drops to which the doctor referred deserve the strongest condemnation. Asepsis should be carried out as thoroughly as possible.

A word or two in regard to drainage. This is accomplished by capillary attraction, and I think in some respects wicking is superior to gauze. You can introduce the former right up to the opening in the membrane and by its capillary attraction you can thoroughly drain the cavity.

As to insufflation or Politzerization, I with the Doctor heartily condemn it. I do not consider it good practice. In the first place, we have a Eustacian tube which is filled with a tough or tenacious mucus, and by means of insufflation you blow this mucus into the ear, and it is exceedingly difficult to get it out again. It does not drain, and it is a culture medium for micro-organisms. The best method to drain the middle ear is not by Politzerization, but by treating the Eustachian tube itself, and this can be accomplished by treating first the orifice by the introduction of astringents into the tube, in that way reducing the inflammatory changes that have taken place and establishing communication with the middle ear.

Dr. HENRY GRADLE—The speaker (Dr. Gehrmann) noted an interesting fact, namely, that the exudate in the purely catarrhal form, as well as in the suppurative variety, contains the same microbe, one or more varieties, and of these I may mention the pneumococcus, staphylococcus, streptococcus, and occasionally the pyocyaneus. Evidence on this subject is definite according to obvious German, Italian and some English observers. Yet these two forms are clinically separate and distinct. At the beginning, it is difficult to say which form we are going to have when pain first begins, but ultimately the course is entirely different according to whether it is catarrhal or the suppurating form. How rarely do we get the history from a patient with the purely catarrhal inflammation of the middle ear that he has ever had suppuration of the ear previously in his life, or vice versa. It is one of the great rarities to see suppurative disease of one ear and the progressive catarrhal form of the affection in the other. We may find the suppurative form in one ear and more or less deafness in the other, but this deafness is stationary and but very rarely progressive. Progressive deafness in one ear and the suppurative form in the other are almost unknown. While the microbes may be the same, the result depends upon the resisting power of the organism.

As to the therapeutics, I think Dr. Pierce represents the modern German school with all its dicta, and we can not cavil with him or dispute his statements.

In the first stage, when the diagnosis is still in doubt as to whether we are going to have the suppurative form or simple catarrhal otitis media, some measures are applicable which the Doctor did not include in his paper. I would principally mention carbolated glycerin (15 per cent). I have had definite experience in many instances in satisfying myself that it has a distinct effect on the pain. Whether it has an effect on the course of the disease it is difficult to say, and I am not quite settled in my opinion, but in those cases which look like incipient suppurative otitis the use of 10 per cent. or still better 15 per cent. solution of carbolic acid in glycerin will give often timely and permanent relief, although it fails in some instances. In the incipient stage I would not hesitate to use inflation, but prefer the catheter. Then we get distinct suppuration, inflation is perhaps not the best plan to pursue. But we can not always tell in the incipient stage, where the diagnosis is not yet definite, where we have a moderate injection of the membrane, no distinct bulging, no appearance of fluid in the cavity, but where the individual has pain, and more or less rise of temperature, whether the disease is going to lead to suppuration and perforation of the membrane or not. In such instances inflation by the catheter, followed by carbolated glycerin will occasionally arrest further symptoms. It will terminate that form which would not have proceeded to suppuration, but would have given the patient trouble for a few more days. When the membrane is thoroughly injected and bulging, and the persistence of the symptoms has left no doubt that suppuration is taking place, we can not improve upon the treatment that the essayist suggests. Here inflation of any kind affords only temporary relief, and I am inclined to agree with him on theoretic grounds, it is true, but on grounds that can not be utterly disputed, that inflation may increase the liability to mixed infection and thus prolong the disease. The essence of the entire treatment, after the diagnosis has been made, is absolute rest and drainage. Paracentesis has its well defined indications. Perhaps the brevity

of the paper did not permit the Doctor to give all of these indications. The opening once established, there is no particular benefit to be derived by forcing fluid out by pressure through the Politzer bag or catheter. The sticky fluid Dr. Wilder speaks of occurs rather in the chronic form than in the acute otitis. In the acute cases drainage with gauze is sufficient. I have always feared that the gauze such as we purchase in stores is not absolutely sterile. We have no guarantee against the entrance of putrefactive germs from the outside. I hence saturate the gauze with boric acid powder before using it, and I do not change the gauze any more than I can possibly help. I pack the cavity as densely as possible, allow the fluid to drain to the surface, where it partly evaporates, and keep the dressing in place as long as I can. Since following this method I have seen most of the cases run a milder and less protracted course than in my former experience.

Dr. Wm L. Ballenger—For fear that I may have been misunderstood in one of my statements, I will say that I do not oppose paracentesis in these cases, but I should try other methods such as I first suggested. I understood Dr. Pierce to say that he almost always resorts to paracentesis as a primary treatment. It was his universal practice of doing this that I objected to.

Dr. Norval H. Pierce—Realizing that my paper was somewhat radical, I was prepared for a warm opposition. I do not think there is anything left for me to say except to assure the Fellows of the Academy that Dr. Dickerman and myself are not in collusion. He, together with Dr. Gradle, has said about everything that I could say. As regards Politzerization, I would like to ask what the gentlemen expect to bring about by it? What is their object in Politzerization?

Dr. Wm. H. Wilder—I do not know who is expected to answer Dr. Pierce's question as to what is the object of Politzerization. One great advantage in these cases is the reëstablishing of a connection between the middle ear and the pharynx that normally exists. If you can open the tube, sometimes the fluid will flow back into the pharynx, and the entire trouble will disappear at once. This is a point that Politzer himself advances. After paracentesis the exudate, which is sometimes quite thick, will not flow out so readily by ordinary drainage as it will if you force it out by means of a current of air forced into the Eustachian tube by inflation with a Politzer bag or better, by means of the introduction of the Eustachian catheter. I am inclined to think that more cases contain sticky mucus than Dr. Gradle supposes. Such cases are in one sense chronic, in which there has been an acute exacerbation of the disease; but we shall get rid of the exudate more promptly if we use insufflation than we should without it. I do not see why we should discard a remedy which has proven useful, simply on the hypothetic ground that we are going to introduce more germs from the throat into a cavity that has already shown itself to be septic.

Dr. Wm. L. Ballenger—I think there are two other indications for Politzerization. One is that you thereby introduce into the tympanic cavity oxygen, which is a very good therapeutic measure, and another is that you induce pressure. You increase pressure in the middle ear, which relieves the congestion. Some time ago Dr. Fütterer read a paper upon the subject of exudative pleurisy in which I believe his treatment was pneumonic pressure to prevent the exudation. We can prevent the rapid exudation or suppuration in acute otitis by, 1, increasing the air pressure; 2, by introducing oxygen; and 3, by cleaning out the cavity as Dr. Wilder has suggested. I consider these three good reasons for using Politzerization. As to paracentesis, there many be decided indications for it in acute otitis media. These indications are when you have reason to suspect the fluid in the cavity is purulent, when you can see the bulging of the membrana tympani. Cases of acute otitis media exist without a purulent condition being demonstrable. Our standard textbooks, such as Politzer, divides acute otitis media into suppurating and non-suppurating forms. In acute suppurative otitis media I should not hesitate to recommend paracentesis. In the simple form the tympanic cavity is not filled with pus, and I should condemn this procedure except as a last resort to relieve the intense pain which can not be relieved by any other means. Where one is pursuing a line of study as to what would constitute the best therapeutic measures he is apt to forget that the system has powers of recuperation independent of any extraneous therapeutic aid. If the membrana tympani is retracted the indications are to open the Eustachian tube. If it is bulging with pressure of pus from within, the indications are for paracentesis. There should never be any relaxation of effort to open the Eustachian tube in any case. As I have said before, this can best be done by giving attention to the general catarrhal condition of the naso-pharyngeal membrane and to other morbid process as post-nasal adenoids, etc.

Dr. Norval H. Pierce—As regards Politzerization, our establishment of the permeability of the Eustachian tube can not aid in drainage of the tympanic cavity to any large degree, because we know the tube empties at the top of the cavity; it goes in at the roof just below the attic, and the larger part of the space is below the orifice of the Eustachian tube. Politzerization is done for the purpose of reëstablishing atmospheric pressure in the middle ear. That is one reason for which Politzer devised this procedure when he introduced it to the medical profession. We know that when the Eustachian tube is closed for any length of time the atmospheric pressure in the tympanic cavity sinks. This is probably due to absorption by the capillaries of the mucous membrane of the oxygen from the air. A partial vacuum is produced in this way, which is exerted as suction upon the capillaries, producing dilatation of them. There is a sogginess of the mucous membrane from the fluid portions of the blood extruding from the vessel walls, and later a diapedesis of the cellular elements. This condition may not be connected with true inflammation. We believe that by paracentesis we reëstablish the atmospheric pressure just as quickly as by Politzerization. In other words, paracentesis accomplishes just what Politzerization does without the dangers. My results during the past two years in acute otitis media, whether it be more or less septic, and they all are, has warranted me in believing that this is the true and only mode of treatment. The majority of cases have been cured within the first fortnight, and this can hardly be said of any other mode of treatment, taken as a whole. There are many points touched upon in the discussion which we dealt with in the body of the paper, if I took up your time with these I would only repeat myself.

ETHER AND CHLOROFORM.

Read before the Mississippi Valley Medical Society at St. Paul, Minn., Sept. 18, 1896.

BY W. S. CALDWELL, M.D.

Fellow of the British Gynecological Society; Membre l'Association Francaise de Chirurgie; the American Medical Association; the Mississippi Valley Medical Society; the National Association of Railway Surgeons; the Illinois State Medical Society; Surgeon to St. Francis Hospital, etc.

FREEPORT, ILL.

I am just now entering upon my fifth decade as a practitioner of medicine, and though it is a humiliating reflection, yet it is a fact, that what I learned of therapeutics during one of these epochs, I had to unlearn in the next, and that with all my delving among the resources of the materia medica, I can now count upon the fingers of both hands, nearly all the remedial agents that have stood with me the test of forty years.

Among the few ideas, the few firm convictions that have become thoroughly implanted in my mind in the use of drugs, the superiority of ether as an anesthetic has become with me a confession of faith, firmly rooted and immovably fixed.

It is now over thirty years since I made my first professional tour of Europe, and since then I have repeated the journey four times, and among the changes I have noticed at each visit, especially in Great Britain, is the more general use of ether as an anesthetic.

Thirty years ago chloroform was in general use, while during my visit in 1893, I do not remember to have seen this drug used at all to produce general anesthesia in the adult, anywhere on the British Isles.

These observations excited my pride, exalted my patriotism, for I was proud of the fact that ether, as an anesthetic, was an American discovery, and that conservative Europe was gradually adopting this agent, and discontinuing the use of the more dangerous one that had had its birth on the other side of the Atlantic.

When men tell me that chloroform, if properly given, is a safe anesthetic, I recall with a shudder the deaths I have seen occur while patients were being

operated on by the great lights in surgery in Paris, Vienna and Berlin; on the other hand, I have never seen a single patient die on the table while ether was being administered as an anesthetic.

Imbued with these convictions, sustained by an extended observation, you may imagine my surprise and consternation when last spring, at the meeting of the American Association of Railway Surgeons at St. Louis, while the subject of the merits of chloroform and ether were being discussed, a vote was taken as to the preferences of that body for these two drugs, and 105 of those present advocated the use of chloroform, while only 16 were on the side of ether.

Like many another fanatic, I in my enthusiasm imagined I had a mission, and that mission was to buckle on my armor and, like the old Crusader, preach and combat with all the earnestness I possess in favor of my pet anesthetic.

It is this conviction that has actuated me to read this paper before this Society to-day. I shall not bore you, however, with a history of anesthesia, nor recount to you all the agents that have been used for this purpose from the days of Hippocrates to the time when Morton of Boston and Simpson of Edinburgh discovered the use of these two agents that are now almost universally used as anesthetics, but shall proceed to discuss the merits of these two great champions, chloroform and ether.

Neither will I worry you with figures gathered from a vast variety of sources, and compiled by a large number of authorities, to prove to you that ether is a safer anesthetic than chloroform. Statistics, though often misleading, when they all point in one direction and all verify the same fact, are certainly worthy of some credence.

Now, though these figures vary somewhat, as compiled by different men, taking them on a general average, they prove chloroform five times as dangerous an agent for general anesthetic purposes as ether.

Another point I wish to make in favor of ether, is that our mortality reports showing the number of patients killed by chloroform and ether, are compiled from the statistics kept by large hospitals in the main, where anesthetics are most skilfully given.

Now, as nearly all of the advocates of chloroform admit that it requires more skill in its administration, I believe if all the figures could be gathered giving the true number of accidents that have occurred from chloroform, given by everybody, and under all circumstances, that the advantages of ether as an anesthetic would not only be a relation of 5 to 1 in favor of ether, but a relation of 10 to 1; in other words, chloroform being the more dangerous agent, requires more consummate skill in its administration, and as that skill is not possessed, in my opinion, by one physician in one hundred, they should use that anesthetic which, though bunglingly given, is not likely to result in the death of the patient.

I sent out last August over two hundred circulars, addressed to the surgeons of the United States north of Baltimore and St. Louis, and including those two cities, asking a reply to the following questions:

1. Do you generally use ether or chloroform in your practice as an anesthetic agent?

2. State briefly your reasons for preferring the one or the other.

3. How many deaths have you had in your practice from chloroform? From ether?

4. How many deaths do you know of that have occurred in the practice of other surgeons from chloroform? From ether?

I find my replies as sectional as politics; nearly every advocate of chloroform was west of Buffalo. Chicago was about equally divided between chloroform and ether; the further west I got my replies from, the more generally did the writers use chloroform. This was another blow to my pride, for I always had a conviction that the West was the most progressive portion of our progressive country. St. Louis is three-fourths chloroform. I only sent my circulars to the homeopaths connected with the large colleges and hospitals, and the replies I got were all in favor of ether. New York, Philadelphia and Boston use ether exclusively, according to the replies sent me, except in a few instances where the surgeon began the anesthesia with chloroform and then followed it with ether.

The wide-spread use of chloroform in the West will, I suppose, account for the vote in its favor at the St. Louis meeting of railroad surgeons, where, as I stated before, chloroform had 105 advocates and ether only 16. Of those who have answered my questions, 60 per cent. use ether, 25 per cent. use chloroform, and 15 per cent. use various mixtures of ether and chloroform, mostly the A. C. E. mixture.

My correspondents reported 127 deaths from anesthesia, that they had had in their own practice, or known in the practice of others. Of this number, 15 were from ether and 112 from chloroform.

Most of the chloroformists who answered me lay great stress upon the fact that the remedy must be given with *great care*. Their cautious language would seem to show that most of them were afraid of the remedy themselves. They exact *trained* and *skilled* men in its administration; an amount of skill, in fact, which few of us possess.

Prof. Roswell Park of Buffalo, the only advocate of chloroform in the East, when he answered my questions said, "I believe chloroform equally as safe as ether in *proper hands*, with *proper precautions*, and it is otherwise preferable." He says he has lost one patient on the table from chloroform, and knows of three or four others that have died in the practice of other surgeons, from chloroform. He says: "Ether does not kill as many on the table, but many more afterward, because of various complications, hence my preference for chloroform."

Dr. J. B. Murphy of Chicago says: "Chloroform is safer, though the operation requires *more care* and *skill* in its administration."

Dr. McArthur of Chicago, though an advocate of chloroform, ends his communication to me in these words: "There is no doubt that ether is a safer agent than chloroform; it is folly to deny this in the face of the enormous statistics," and yet he says, "in *careful hands* chloroform can be used with impunity where no contraindications exist."

One of the most distinguished surgeons of Kansas City and a warm advocate of chloroform says: "The agent is *safer* in *skilled hands*, but the trouble is, the chloroformer watches the pulse, and neglects the respiration, while the danger always approaches through the function of the lungs." He has never had a death in his practice. His teachings, however, according to the latest investigations on the subject, are fallacious, misleading and dangerous, for an analysis of 384 deaths from chloroform tabulated by the London *Lancet* Commission shows that in 227 of

these cases, the pulse failed entirely before the cessation of respiration. In 77 cases cardiac action and respiration ceased simultaneously, and in only 80 cases did the respiration stop before the heart. While the venerable Kansas City surgeon's rules hold good in the main, in the administration of ether, they are not applicable when applied to chloroform. In fact, anyone who gives an anesthetic, whether ether or chloroform, and does not watch both the heart and the respiration, is certainly an unfit person to act as an anesthetizer.

Bearing on this point, Alphonz Guerin read a paper before a French surgical association in 1894, showing the great danger of chloroform as an anesthetic, though he says the experiments of Claude Bernard and Paul Bert, as well as the Hyderabad Commission, demonstrate that death usually approaches by way of respiration. This eminent surgeon says that in a certain number of cases, chloroform inhaled, was followed by a paralysis of the heart's action, and that the patient was beyond all hope of recovery at the moment the first signs of danger were observed.

Dr. Montgomery of Chicage prefers chloroform on account of the time saved, and the less nausea following its use.

Dr. Bouffleur of Chicago, in his answer to my circular, says he gives chloroform twice as often as ether, because it is less voluminous, easier to administer and less disagreeable in its effects, and that in properly selected cases, and if *properly administered*, it is equally safe. The Doctor, however, in his article, "Anesthetics and Anesthesia" in the Supplement to Ashhurst's Surgery, says: "Ether should be preferred to chloroform unless the anesthetist is *skilled* in the use of the latter." Further on in his letter to me he says that, generally speaking, ether is four or five times safer than chloroform. This further demonstrates my position that, as a skilled anesthetizer is not generally obtainable, we should use that agent which, even in unskilled hands, is not likely to result in the death of our patient.

Dr. Keeler, chief assistant in Bardeleben's surgical service in the Charity Hospital in Berlin, stated to me that statistics showed that the fatal cases from the use of chloroform in that institution for the last twenty years, occurred generally in the hands of new men, who came on in their regular turn. The Doctor told me nearly every new man had to kill a case or two before he could get his hand in.

The English surgeon is, in my opinion, the most careful of the life of the patient he is operating on, of any man living, and in the large hospitals they employ a professional anesthetizer; he generally begins his anesthetic with the nitrous oxid gas, and follows that with ether. In conversation on this subject with a noted surgeon of Guy's Hospital, he told me that only in an emergency would he trust even himself to give an anesthetic.

It would make my paper far too long were I to quote all the reasons given by advocates of chloroform for their preferences for that drug; any one, however, who will carefully read over all the answers I have received, will come to the conclusion that surgeons generally give chloroform rather than ether, simply because it is more convenient and easier to give, and requires nothing in the way of an appliance for its administration. However, chloroformists base their preferences for this drug, in the main, upon the following grounds: 1, because it acts more quickly; 2, it is more pleasant to the patient; 3, it produces less nausea; 4, it is more safe to use where you have to have an artificial light; 5, because its after-effects are less injurious.

As to the first of these objections, that it is an agent that acts more quickly, the objection in my opinion is not well founded. Since I have had in view the writing of this paper, I have begun the anesthesia with my patients at St. Francis Hospital myself, and the time required for perfect anesthesia has been from two and one-half to seven minutes and the average time is four and one-half minutes. I use the appliance I show you, which I believe was first brought out some seven years ago by Dr. Kocher of Zurich, and which I first saw most satisfactorily used in the surgical service of one of the hospitals in Dresden. You will see by the construction of the mask that it fits over the face rather loosely, but to make it more air tight I throw a towel over the whole, and tell the patient to breathe fully and rapidly, and gain his confidence by telling him he will feel a choking sensation at first, but that it will soon pass away. I use only Squibb's ether in 100 drachm cans and I never depend upon the remainder of a can that has been once opened. I have used extensively the Clover and Ormsby inhalers and while the former is more economical as far as the quantity of ether used is concerned, it takes longer to anesthetize your patient and is not as satisfactory as the instrument I show you.

As to the second point urged in favor of chloroform, that it is more pleasant to the patient, I do not believe it should have the least weight, when its greater danger is considered.

As to the third objection, the assertion that ether causes more persistent vomiting, is absolutely untrue. Immediately on waking from ether anesthesia the patient is more likely to regurgitate a few spoonsful of mucus from his throat, a secretion which ether has a tendency to increase, but as far as the persistent vomiting that occurs in the next few hours after the anesthetic is concerned, such symptoms are much more likely to follow chloroform than ether. Hewitt in his work on anesthetics sustains me in this position. I carried a renal calculus for fifty years, up to a year ago, when it was removed, and during that time I took an anesthetic more than one hundred times, and when I took chloroform I vomited usually more or less for the next twenty-four hours, while in the case of ether nausea ceased in a short time.

The most flimsy excuse offered me for the use of chloroform is that it is safer to use with artificial light. Why not then restrict its use to cases operated on at night, and not jeopardize the lives of twenty patients operated on in daylight, because one operated on by night would be injured, and those in attendance, by the vapor from ether taking fire from a gas jet or a kerosene lamp.

The indictment against ether on account of the deleterious secondary effects upon the patients probably has slight foundation, but has been enormously magnified by that careless class of surgeons who use chloroform on account of its convenience and want an excuse for their, in my opinion, inexcusable practice. If the patient is suffering from bronchial irritation, ether may have a tendency to increase this morbid condition, at least temporarily. As to the secondary pneumonia that seems to be such a *bête noire* with the chloroformists, it is a condition that

may follow a suppurative process, whether an anesthetic be used or not, and any anesthetic, whether chloroform or ether, might be followed by this complication. Degenerative and inflammatory processes in any of the organs of the body are the result of lowered blood pressure produced by the drug given, and the consequent formation of thrombi in the substances of these organs, and I claim that organic changes, whether of the kidneys, lungs, or any other of the great vital organs are as likely to follow the use of chloroform as ether. To sustain me in this position, allow me to quote from the twenty-seventh volume of the *Archiv für klinische Chirurgie*, Dr. Konrad Budinger, of Billroth's Clinic, "Ueber Laehmungen nach Chloroform Narkosen." In this article Budinger says we may have paralyses following anesthesia, caused by thrombi in the nervous centers, that a partial arrest of the circulation in any and all of the organs may lead to later degenerative changes in the heart, kidneys, liver, etc.

However, most of my correspondents who object to ether base such objections on a general indictment, without specifying their charges.

My hearers are not to understand that I am taking the position that chloroform has no place as an anesthetic. I am in the habit myself of giving it to small children whose hearts are especially strong as compared to the adult, and women in childbed. It was formerly taught that there was no danger in this remedy in this latter class of patients, but later statistics have shown that at least a dozen women are on record as having died during accouchement from the effects of this drug. I am willing to admit that where there is any special irritation about the air passages, ether may have a tendency to increase this, while chloroform may have a tendency to allay it.

I operated on a case last month that will illustrate the superiority of chloroform in exceptional cases. It was a case of hip-joint trouble in a young man 20 years old. The night before I operated on him he had a slight hemorrhage of the lungs, was coughing some in the morning on which I operated. I tried ether, but had to resort to chloroform, as the former seemed to increase his disposition to cough, but as my patient was very weak, I only partially anesthetized him, so much was I in fear of the anesthetic I was using.

Several of my correspondents gave me specific rules as to how I should give chloroform, that it should be given drop by drop. On the other hand, Prof. St. Germain, of the Children's Hospital in Paris, who has probably anesthetized many more children than any man to whom I have written, says that it should be given rapidly and the patient brought under its influence within the fraction of a minute, for if you give it gradually, and any untoward symptoms develop themselves, the patient is so surcharged with the poison you will be unable to resuscitate it. But I only give this upon the authority of one of the most eminent surgeons of Europe, and do not personally endorse the views here expressed.

Coming now to a review of the answers I got from those who favor ether as an anesthetic:

Prof. Nicholas Sands says, "I always give ether except in cases of Bright's disease and in children."

The venerable Prof. T. Gaylord Thomas of New York, in his reply to me, says, "Ether, ether, ether; a practice of forty years has taught me that ether is safe and effectual and that chloroform is attended with great danger. I have had no deaths from chloroform, but have spent many a *mauvais quart d'heure* in resuscitating a patient at the point of death from chloroform."

Prof. Thomas K. Morton of Philadelphia says, "Ether is a great deal safer and I always give it."

Dr. O. P. Pfifer says, "I always use ether, never chloroform, beause it is ten times safer."

Dr. Edebohls of New York says, "I use ether, for one reason that the physicians in this country do not know how to give chloroform."

Dr. J. C. DaCosta of Philadelphia says, "I give ether because it is vastly safer, and I believe deaths from chloroform are twelve times as frequent as deaths from ether. In ether you have some warning of approaching danger, while chloroform is apt to kill without any previous notice."

Prof. C. B. Penrose of Philadelphia, writes me: "I always use ether for I believe the mortality of ether is very much less than that of chloroform. I believe, however, the danger from ether is under-estimated. It is usually administered before a prolonged operation by the most inexperienced physician present, and I think many more would survive prolonged operations if the anesthetic was administered by a man of experience. I would prefer the inexperienced man for an assistant and the most experienced man for the anesthetizer, if I was obliged to choose. I believe that deaths sometimes occur twenty-four or forty-eight hours after an operation, which have been induced by an improper administration of the anesthetic."

In my circular addressed to Prof. Wood of Philadelphia, beside the questions before mentioned, I added "I shall take the position in my paper that the after-effects of ether are no worse than chloroform, except perhaps where there is some irritation of the air passages. Will you sustain me in this view?" He says, "I have always used ether except in a few well defined classes of patients, for which the use of chloroform is indicated in spite of its increased danger." In stating his reasons for preferring ether, he says, "for the safety of the patient. Only those who are ignorant of the greater danger connected with the use of chloroform or who are indifferent to the safety of the patient, habitually use the stronger anesthetic, and it is only excusable on the battlefield, and the exceptions before named. He who has kept himself informed on the subject through the London *Lancet* or the *British Medical Journal*, can not fail to note the great difference between the safety of the two drugs. The claim that the after-effects of ether are worse than chloroform is a mere subterfuge to which careless surgeons resort, as a shelter for their indifference to life."

Dr. A. H. Cordier, says, "Because it is safer and has no drawbacks, not also found from the use of chloroform. Ether anesthesia can be induced in four minutes in skilled hands, and that without a struggle. They vomit less and have less shock after ether. I have not seen any of the bad results on the kidneys that some claim to follow ether, and I do not believe ether will produce these results."

Dr. B. F. Crummer of Omaha, says, "I use ether in surgical cases for adults. My opinion is that surgeons who constantly use chloroform do so because it is convenient, and because they have had the good fortune to not lose a case. A man may drink alcohol all his life and live to be 100 years old, but that does

not alter the well known fact that the use of alcohol is injurious and dangerous. I believe that men who are in favor of chloroform, reason about as does the man who drinks alcohol, hoping that lightning won't strike him."

Dr. Helmuth, an eminent homeopathic surgeon of New York says, "I use ether because the heart may be paralyzed by chloroform, but will not be by ether. Ether produces no alarming syncope; ether stimulates the heart, chloroform depresses and paralyzes it."

Dr. D. W. Graham of Chicago, says, "I always give ether unless there is some special reason for selecting chloroform. I have seen some three or four deaths following ether from pneumonia or bronchial pneumonia, that might be ascribed to the drug, but I have seen the same following the use of chloroform." "The majority of men when asked why they use chloroform instead of ether, simply reply 'they prefer it,' not claiming that it is safer for the patient. I have many times asked this question in recent years, and find the choice is often made as a matter of convenience, rather than the safety of the patient."

Prof. D. A. K. Steele of Chicago, says, "I use ether because it is safer than chloroform. I have had two deaths from chloroform and none from ether. I have known fifteen or twenty deaths in the practice of others from chloroform and not one from ether."

Prof. W. W. Keene of Philadelphia, says, "I use ether because of its greater safety to the patient, which in my opinion should outweigh all fancied or real objections to the drug."

I shall not discuss the use of the A. C. E. mixtures, of which as I before remarked, nearly 15 per cent. of my answers advocate the use. I have always looked upon these mixtures as unscientific, as you never know just what you are giving on account of the different volatility of the different agents of which it is composed, and as the rules for giving chloroform and those for giving ether are radically different, I can not conceive anything but confusion where they are compounded. In the language of Dr. A. C. Wood, "All these mixtures are in my opinion, more dangerous than the individual drugs of which they are composed, and their use should be positively eschewed."

It would give me great pleasure to quote to the society answers I have received from many other eminent surgeons, but as the length of my paper has already reached the limit which I am allowed, I must bring the same to a close, by thanking the Society for their kind attention and courtesy in demeanor toward me.

LACHRYMAL DISEASE.

BY J. H. McCASSY, M.A., M.D.
DAYTON, OHIO.

Under the inappropriate heading of "Diseases of the Lachrymal Glands," Dr. H. S. Bell of Kearney, Neb., contributes a very valuable article on lachrymal diseases in the JOURNAL, June 13, 1896.

Unfortunately, the Doctor at once deserts the title of his article, but paid his addresses to diseases of the lachrymal passages.

I quote the following from his article:

"It is refreshing to find such a unanimity of opinion as to the causation of these lachrymo-nasal affections. It is fully agreed that they have their starting place in sub-acute or chronic coryza. In fact, chronic rhinitis is said to be not only the cause of all the affections of the lachrymal ducts, but to be the prolific source of most all the inflammations of the ocular and palpebral conjunctiva. The consensus of opinion is overwhelming that lachrymal and ophthalmic diseases have their origin in catarrhal inflammations of the nasal turbinals."

The experience of the writer does not fully support such sweeping statements.

The mucous membrane of the nares and the turbinals have a place in the animal economy and have definite physiologic functions to perform. Nature constructed them in accordance with the requirements of their office. They are as perfect in their arrangements and in the fulfillment of their functions as any other part of the human anatomy. Would it not be more reasonable to attribute the prevalence of nasal, lachrymal and ophthalmic diseases to constitutional taints, such as scrofula or syphilis?

Cause.—From a careful investigation of the causation of stricture of the lachrymal passages I think that about 50 per cent. of these cases have their origin in hypertrophy of the nasal mucous membrane, especially that of the inferior turbinals, the exit of the tear duct being in the inferior meatus. Catarrhal, follicular or trachomatous disease of the conjunctiva comes second in the causation of this malady. Local periostitis at the nasal outlet of the canal is a frequent starting point for bony strictures.

Pathology.—Strictures of the lachrymal passages are of three varieties, viz., mucous, fibrous and bony. Mucous strictures are formed by the coming in close apposition of the two inflamed surfaces of the mucous membrane denuded of epithelial cells, firm union resulting. If the inflammation be continued long, and the outer fibrous layers of the duct be implicated, fibrous strictures are produced. If the inflammatory process be extended to the periosteum, bony strictures will result. The usual seat of these strictures will be found in the nasal end of the canal, especially just below the sac, or at the junction of the canaliculus with the sac, or in the canaliculus.

Treatment.—In order to cure the disease it is necessary to produce absorption of the stricture. It is only the very simple cases that a probe passed every few days and left *in situ* for ten minutes or so, will effect a cure. In the more difficult cases this treatment is inadequate to produce absorption of hypertrophied tissue or fibrous bands, and fails to cure.

The following method has been successful in my hands.

I slit up the canaliculus with a Weber's or Bowman's probe-pointed canaliculus knife and cut the stricture in two or three directions with Stilling's knife. Blood coming from the naris will be assurance that the stricture has been divided. A No. 6 to 8 Ayers' or Bowman's probe is then passed, the canal washed out, and a "C"[1] silver canulated style dropped in. The head of the canula will occupy the interior of the sac and remain invisible and quiescent for years. I usually take the precaution to have a thread cut in the upper end of the lumen of the canula to correspond with the thread cut on a probe of steel or silver wire, which may, when desired, be screwed into the canula as a means of extracting it. Before cutting the thread on the probe about three-eighths to one-half an inch of the end should be reduced to about one-half its regular diameter. This small end

[1] The style "C" referred to is shown in Max Wocher's catalogue, but is designated style "F" in Crocker's, Armstrong's and Aloes' catalogues.

of the probe will enter the canula more readily and facilitate the screwing of the latter into the former.

The canula may be left *in situ* indefinitely. A few granulations at the upper end of the canal are the complications observed, but these will usually disappear on being touched with a saturated solution of chromic acid on a cotton carrier.

In operating, the upper canaliculus is to be preferred, because it is more accessible, easier kept clean and less liable to irritation. At present I have eight patients wearing canulated styles. In two cases the styles have not been disturbed for six months, the patients experience no trouble and prefer to wear them rather than run the risk of removing them.

During the first few days most patients will be conscious of the presence of the style in the lachrymal canal, but they soon learn to disregard it.

The canula left *in situ* for two or three months will usually suffice to produce absorption of the stricture but should there be a return of the trouble, the canula may be replaced for a few weeks or months longer.

Yesterday I operated on a man 38 years of age, and today upon a gentleman 64 years of age for stricture of the nasal duct and inserted styles. The latter patient has had a complication of ectropion and symblepharon of the left eye for twenty years. I feel assured that recovery will take place.

The presence of a style does not prevent our injecting antiseptic or astringent solutions through the canal. The shape of the canulated style used by me conforms to the anatomy of the parts perfectly. I think that any bills or protuberances on the style would be a source of irritation. Judging from a description of the mechanism of Dr. Taylor's tubes, I am of the opinion that they would cause irritation.

Assuming that the short process (three-eighths of an inch) is designed to occupy the canaliculus, and the part below the angle to be in the lachrymal canal below the sac the former would necessarily be exposed in cases where the canaliculus had been slit up preparatory to cutting the stricture in the nasal duct. The most frequent seat of stricture in obstinate cases is below the sac. Our efforts to cure will be commensurate with our success in securing drainage through this region. Besides stricture below, the sac can not be cut until the canaliculus is slit up. In these cases the short process of Dr. Taylor's tubes would be exposed, and retard healing of the canaliculus around the upper and lower blades of the duck-bill snout of the style. Unless the upper end of the style is in sight or can be reached and grasped with a fine forceps it would be difficult to extract should occasion require it to be done.

32 West Fifth Street.

A CASE OF TETANUS TREATED WITH ANTITETANIC SERUM; RECOVERY.

BY G. E. MUNS, M.D.

MONTGOMERY CITY, MO.

The patient was a little girl, age 5; healthy, history good up to this attack. About ten days before I was called, patient had received an injury of the left thumb from stroke of hammer in cracking nuts. The nail was badly bruised; flesh at base of nail was lacerated to some extent and the nail separated from thumb at its base. The wound healed nicely under local treatment. About ten or twelve days after the injury the parents noticed a change in the child's disposition. She became irritable, would not play, slept badly, ate little and required constant attention. In a day or two these symptoms were followed by stiffness of the spinal muscles and of the muscles of the upper and lower extremities. The muscles of the face were so contracted as to give the child a peculiar expression. When I saw the patient for the first time the symptoms were very much aggravated. Tonic spasms of the muscles of the spine and of the upper and lower extremities were almost constant. The slightest effort to exercise, eat, drink or perform any muscular labor was accompanied with severe tetanic spasms. The risus sardonicus so common in such cases was a very marked and constant feature. The jaws could not be opened at any time more than half an inch.

Diagnosis was easily made and the case treated for a few days by the ordinary methods of the text-books; but there was no improvement. Obtaining through the Kansas City branch of Parke, Davis & Co. a sufficient quantity of their tetanus antitoxin, treatment was begun two weeks after the first manifestation of the characteristic symptoms. We gave the child five doses of two drachms each hypodermatically about every eight hours. No other treatment was used. We nourished the patient carefully. The symptoms abated visibly in twenty-four hours. The muscular spasms became less and less severe and frequent, until they disappeared.

In this case the remedy seemed to act promptly and favorably, and it may be fairly credited with the favorable result. In the treatment of the case, Dr. W. B. Adams of Montgomery City, was associated with me, and bears out my judgment of the remedy.

SOCIETY PROCEEDINGS.

Chicago Academy of Medicine.

Regular meeting Nov. 13, 1896.

Dr. WM. L. BAUM in the Chair.

DISEASES OF THE NASAL ACCESSORY CAVITIES.

Dr. HENRY GRADLE spoke on this subject. He said: The importance of diseases of the nasal accessory tract is perhaps not fully recognized by the profession at large. We have hitherto not fully understood how manifold may be the symptoms produced by these affections and how frequent is the involvement of these cavities in disease. I have concluded to present some recent observations not generally known, as well as personal experience, and will give you no formal paper.

As to the frequency of these troubles a most startling announcement was made by Fraenkel a year ago, namely, that in 146 unselected autopsies of cadavers as they came to the postmortem room at Hamburg, he found no less than 63 instances—that is to say about 40 per cent.—in which there was involvement of one or more of the accessory cavities of the nose. He found one cavity involved thirty-seven times, two cavities eighteen times, three six times, four one time, and all six cavities (two frontal, two sphenoidal, and two maxillary sinuses) one time. In no instance did he find disease of the ethmoid sinus. These were unselected autopsies. Some of the diseases predisposed to inflammatory involvement of the sinuses, especially pneumonia and cerebro-spinal meningitis, in which instances a very large percentage of sinus disease was present, more so than in the chronic forms of disease. In peritonitis also a large number of instances were met with, several of them apparently due to the presence of the colon bacillus.

In confirmation of these researches I may mention the work of Wolff, who found in twenty two cadavers of children, dead of diphtheria, maxillary sinus involvement in every instance and the sphenoidal sinus diseased in every instance in which it had been developed. In fifteen it was undeveloped on account of age, while in seven cases in which it existed it was diseased. The involvement was specified as catarrhal or diphtheritic, according to the character of the disease in the nasal cavity.

Similarly, Harke found in 30 children dead of infectious dis-

eases of the air passages, like croup, diphtheria, measles, whooping cough and scarlet fever, suppuration of one or more cavities in all instances; while 37 adults dead with acute infectious diseases there were 31 cases of sinus involvement. Dmochowski, who searched only for disease of the antrum, found it in 28 instances in 152 unselected cases on autopsy.

How does this information harmonize with our clinical knowledge? Fraenkel says his cadavers were all sent to the postmortem room without a clinical diagnosis of sinus involvement. Until within the last year or two scarcely anything had been known about the symptomatology of acute diseases of the sinuses, and no one until within the past two or three years had any idea whatever as to the enormous frequency of acute disease of these cavities. While some of the milder cases may perhaps be unrecognizable during life, on account of the very slight symptoms to which they give rise and on account of their transient nature, still a more serious involvement of the sinuses in the acute form can give rise to marked symptoms. It is characterized essentially by pain, which is tolerably constant in the cases of acute inflammation of the maxillary and frontal sinuses. In the cases of the former the pain had generally been diagnosed clinically a neuralgia of the fifth nerve. In the case of the frontal sinus it is typical, over the supraorbital region and one side of the median line of the forehead, the supraorbital neuralgia.

As to the pain produced by disease of the sphenoid and the ethmoid sinus in the acute form, we know practically nothing. In all probability, however, many of the headaches and neuralgic pains occurring during acute diseases are in reality due to involvement of one or the other sinus in acute inflammatory action.

Most of the acute troubles are transient and ultimately cease even without treatment. It is rather questionable whether we are called upon to treat them actively as the treatment would necessarily be of a surgical nature. Seeing that there is a spontaneous tendency of these acute affections toward recovery, we may possibly be able to assist this recovery by attention to the condition of the nose, particularly the removal of secretion by means of the nasal douche, with due regard for the dangers to the ear which the nasal douche may entail if carelessly used. It is only when these cases are protracted and pass beyond a period of two or three weeks that we can expect them confidently to last until relieved by treatment, or perhaps relieved by change of climate.

Of course, the bulk of clinical work pertains to chronic affections of the sinuses. A chronic affection is observable to the patient by the discharge of pus to which it gives rise. It is, however, a mistake to think that the discharge of pus must be so free as to call the patient's attention to it. It is true, in the case of the ethmoid and sphenoid sinuses, we depend entirely upon the discharge of pus and the visibility of its track from the orifice of the sinuses down into the nose; but in the case of the frontal and maxillary sinuses we often meet with instances where the purulent discharge is so slight as to be either ignored by the patient or denied, although when questioned closely we can generally ascertain that there has been some slight discharge present at times.

How are we to recognize the existence of a purulent inflammation in such cases where the discharge is minimal? I will speak principally of the maxillary sinus because my experience pertains to that more than any other, both because disease is more common in this sinus than in any other and because it is only recently that we have learned to recognize involvement of the other cavities.

In the case of the antrum of Highmore, some value may be placed upon the results of translumination. It is, however, not an infallible method of diagnosis. We may suspect empyema on account of relative opacity, when it is really not due to the existence of pus but to the rudimentary condition of the sinus and the abnormal thickness of the osseous walls—at least, abnormal when compared with the other side. Such a mistake has once occurred to me. I think others have likewise called attention to the possibility of this error. On the other hand, we can overlook empyema of the sinus if we place too much reliance upon the translumination test, for in some cases the fluid in the antrum is not pus but serum, and in other cases the discharge is not copious enough to fill the entire cavity, but consists of a small quantity of thick pus lying in one of the recesses of the cavity and not at the bottom of the sinus. I have several times seen instances where upon the evidence of the translumination alone I would not have dared to puncture did not other symptoms point to the existence of maxillary trouble and found my efforts rewarded with definite results. Absolute evidence can only be obtained by the puncture, which it is best to make through the alveolar process of the first molar tooth, or as close as possible to it.

According to Zuckerkandl, in about one-fourth of all skulls examined the sinus does not extend anterior to the first molar tooth, while in three-quarters of the instances it extends to the second bicuspid, if not anteriorly to it.

Ziem has suggested that in those cases in which we do not wish to sacrifice a sound tooth, we can enter through the palatial side of the alveolar process next to the first molar tooth. The operation is nearly as easy as going through the socket of the tooth. In one instance, however, I failed in reaching the sinus through this route. On puncturing we can not always obtain definite evidence by aspiration for the reason that in some instances the disease is limited to one of the recesses of the maxillary sinus. I have seen this happen twice, where the syringe would draw out no fluid, but where on irrigating I found a characteristic plug of decayed pus in the fluid as it flowed from the nostril. It is necessary to cleanse the nostril first so as to make no error on account of pus coming from some other locality in the nose.

What are the symptoms upon which we can rely? There are none that are absolutely characteristic, but there may be a great variety of them that are strongly suggestive. Again I will refer essentially to the maxillary sinus, on occount of my limited experience with the others. The main symptoms most generally present are those of nasal irritation. As a rule, we have to deal with relatively narrow noses where the antrum is involved in chronic trouble. I say as a rule, but that is not always so, because the disease may be of dental origin, though this is not common. In the majority of cases where the disease is of a nasal origin, it would not have become chronic but for the reason that the nose is narrow. Now, in a narrow nose any irritative process leads to occlusion or stuffiness, and this stuffiness may in some cases be the only symptom of suppuration going on in the antrum of Highmore. Again, there is, as a rule, though not invariably, some diffuse catarrh of the nose, even of the pharynx, present, and this may extend into the bronchial tubes in the form of a temporary attack, or even a more or less persistent chronic bronchitis. In those persons who are predisposed to nervous reflexes, who are neurotic, we may also get reflexes, such as cough, sneezing attacks and asthma. I have personally seen an instance of asthma which occurred while under observation on evacuating the pus from the antrum.

Beside extension of nasal disease and nasal irritation downward, we may also have extension into the ears. Empyema of the maxillary sinus may lead to ear disease, just as much so as any other form of chronic nasal disease or anomaly, and as far as the ear lesions are recoverable, recovery will be favored in such cases by the prompt removal of the primary cause, that is, by the successful treatment of the antral disease.

Disease of the antrum is likewise liable to lead to involvement of the eye. Many cases complain simply of pains which may be interpreted as asthenopia, that is to say, more or less discomfort, like tingling, present most of the time, but exaggerated upon using the eyes. Apart from this purely functional disturbance, there may occasionally be serious organic lesions of the eye as a sequence of disease of the maxillary sinus. Ziem has called attention to this possibility. The cases he presents are by no means convincing. I have only seen two cases, which if not absolutely convincing, are at least suggestive of such a relationship. One was a case of exudative chorioretinitis which had increased steadily for two weeks. Upon examination the antrum of the same side was found filled with pus, presumably of recent (dental) origin. The eye symptoms began to recede at once after opening and irrigating the antrum. The other case was one of neuro-retinitis which had increased for three months and remained stationary under my observation under the use of large doses of iodid of potassium. I had no clear history of syphilis; I could get no definitive evidences of this disease, but I considered it the only thing to do, namely, to work on the basis that it was of syphilitic origin. I finally decided to puncture the antrum on account of one-sided nasal discharge. Translumination in this case was not decisive. On puncturing the antrum I found a plug of purulent mucus, and from that time on improvement began. These are the only two instances in which organic lesions of the eye seemed to have followed disease of the maxillary sinus within my observation.

Disease of the frontal sinus, too, may give rise to pain referred to the eye often, or to typical supra-orbital neuralgia. The pain may radiate, or it may be localized in the orbit by the patient.

Whenever suppuration of any sinus is copious we often encounter a general disorder of health, furred tongue, more or less digestive disturbance, sometimes a decided loss of strength and even weight, probably due to absorption of pus in loco, or after swallowing.

Finally, as to the dangers of these suppurative diseases. They seem to have been rather overrated. The number of instances where fatal complications occurred by extension into the brain, or by phlebitis or general septicemia, is really very small. There are probably not more than two dozen cases on record in all of fatal results traceable to diseases of the sinuses. Still even these two dozen cases, with perhaps a fair number of others, the origin of which was not recognized, make it imperative to keep in mind the possible serious nature of the disease which in many instances leads to abrasion of the bone and possibly a deeper involvement of the osseous structure. It is probable that disease of the ethmoid sinus is the most dangerous on account of the immediate proximity of the ethmoid bone to the dura mater and cavernous sinus.

As to treatment I have little to add. My experience coincides with that of others. The main object is to secure a permanent opening. I think, however, I can say a few words with reference to drainage of the maxillary sinus. Formerly, my results in disease of the maxillary sinus were anything but encouraging. The symptoms whatever they were, were indeed relieved at once by opening the sinus and irrigating, but the patient did not get well. I found the reason of my failures in the earlier cases was insufficient drainage; not because my opening was not sufficiently patent, but because I did not recognize the fact that the pus is so tenacious that it will not drain from the maxillary sinus. My results within the last year and a half have been much better by not attempting continuous drainage, but by limiting myself to a puncture of the antrum through the alveolar process about 5 to 7 millimeters in size and using frequent irrigation, which the patient carries out at home from two to three times a day. Since I have followed this plan and insisted upon the patient learning to irrigate himself, my results have been very much more satisfactory. There are indeed cases where there are such extensive changes in the lining of the maxillary sinus, either by cysts or granulation tissue, or less frequently, polypous formations that a small opening through any of the walls is absolutely insufficient, and in such cases nothing can be done except to make a more extensive resection of the anterior wall, which affords complete relief, but which requires many months, if not years, before an ultimate cure will take place after thorough curetting of the entire lining of the maxillary sinus. The majority however of those instances of empyema of the maxillary origin, which date back only some months, will heal in the course of six weeks to three months, if regular irrigation is practiced. Even in long standing disease this plan—the simplest of all procedures—deserves a first trial and will often be found sufficient.

Dr. W. X. SUDDUTH—I am not familiar with the statistics that have been presented by Dr. Gradle, but the first impression I get from them is that, from a practical standpoint, they are of little value. My experience in the pathologic laboratory and autopsy room has taught me that in cases coming to the autopsy table nearly every cavity in the body presents, more or less, some evidence of inflammation, and I am not at all surprised that 46 per cent. of the cases that go to autopsy, should present evidences of inflammation of the sinuses, because any disease that is fatal in its nature necessarily involves more or less the whole body.

A statement made by the speaker that the maxillary sinus in a large per cent. of the cases is not present anterior to the first molar tooth, is a surprise, for the antrum arises from the nasal cavity and must connect with it.

Dr. GRADLE—I said in about one-third of the cases. In two-thirds of them it is.

Dr. SUDDUTH—The difficulty in tapping the antrum, in all probability, lies in the fact that the trocar is not placed high enough, because any considerable difference in width of the alveolar process, would make it possible to miss the antrum. If the trocar is introduced high enough to avoid the roots of the teeth, it will almost invariably tap the antrum in the vicinity of the first bicuspid tooth.

Another point of which no mention was made was with reference to using a curved trocar in exploratory aspiration through the nasal membrane. I do not think we are justified in depending upon transillumination in our diagnosis, as the speaker has said. There are cases of an obscure nature where it is justifiable with a curved trocar to aspirate from the nasal side.

The next point is with reference to the necessity of obtaining drainage. Quite a number of years of experience in this line teaches me that the method of drainage advocated by the speaker in treating the antrum is the most unsuccessful of all, because the establishment of drainage in this way presents a source for constant infection by the saliva, and the majority of cases do not heal. A chronic condition is set up that lasts for years by that method of treatment. I have devised and used in my own practice a method of treating the antrum based upon that observation and after assuring myself of suppuration of the maxillary sinus, I use a circular trephine, going into the antrum as a rule above the first bicuspid tooth. The outer plate is thin, from a sixteenth to an eighth of an inch in thickness. The opening is very readily made, and then I make sure that the nasal orifice is patulous, introducing tepid soda solution and flooding out as much of the pus as I can into the nasal cavity, then introducing peroxid of hydrogen. After the first dressing is selected, a soft rubber catheter of the same caliber as the trocar is used, inserting it into the antrum about an inch and a quarter, then ligating it to one or more of the teeth, furnishing the patient with a glass syringe to use the different tepid solutions himself. The great trouble in making an opening into the mouth and allowing the patient to rinse it out himself is the inflammation that is kept up in the margins of the opening and the pain the patient has in using the syringe. I speak from experience because I have tried this method of treatment in my own case. I had infection of my right antrum from the nasal side, it was trephined in that way and I had to wash it out myself with syringe, and by allowing the opening in the mouth I got no healing but much pain from that method of treatment. I thought I was conscientious in washing it out two or three times a day. Then the plan now usually adopted was tried of introducing a tube, keeping the end of it plugged, simply using it as a means of allowing washing into the nasal cavity. The discharge came out readily without trouble and as soon as this method was adopted my antrum began to get better, it healed, the tube was taken out and the antrum is now as comfortable as it ever was and has been for some years. I have used this method in a number of cases in practice also.

My experience with drainage into the mouth in these cases is very unsatisfactory, and this method is accountable for a great many cases of failure to heal. Dr. Garretson, who had an extensive practice along this line, stated in his oral surgery, that the antrum once opened never heals. I was conversant with his method of practice, and it was a fact, according to his way of practicing, that the antrum seldom or never did heal. My own has healed nicely and, as I have said, I have a great many cases in practice that I have handled in the same way.

The close association between frontal, ethmoidal, sphenoidal and the antral sinuses is one the profession does not take sufficient cognizance of. Where one is chronically involved, especially if the disease begins with nasal catarrh and involves the ethmoidal or sphenoidal sinus, the antrum is apt to be implicated also, and a great many cases of failure to treat antral affection successfully is by reason of the intimate connection of the sinuses above that are involved and discharge into the antrum. By treating the other sinuses we succeed in curing the antral affection.

I can not speak from experience as to the extent of the involvement of the ear in these affections, but it stands to reason that it should be more or less involved in chronic cases.

Methods of differential diagnosis are also to be considered.

The use of the electric light in my hands has given little or no result. Dr. Gradle brought out the point several times, especially in acute affections, that the fluid in the antrum is simply serum and does not in any way interfere with the passage of the light. In a few cases the light is no good whatever. In chronic affections, where the pus is thick, the light is of very little value. Position has been one of the best means in my hands of making an absolute diagnosis, next to that of aspiration. I resort to it before I resort to the aspirator. Affections of the antrum are generally unilateral, seldom bilateral, and the location of the pain is one point to be depended upon, also by having the patient lie on the opposite side. If the right antrum is affected I have them lie on the left side, and if there is a free discharge in that way and there is no discharge lying on the right side, you have a good point of differential diagnosis. Then you can adopt the method of drainage into the nose, allowing the pus to discharge through the natural opening. This is the best way of effecting a cure.

As Dr. Gradle truly said, acute affections are best treated constitutionally rather than by surgical interference. We are not justified in opening into the antrum, especially in cases where the disease is self-limiting. A great many of these cases will get well if treated constitutionally, except those of specific or tubercular origin. These cases are hard to deal with, and can only be treated constitutionally.

The prognosis in the treatment of antral affections is good, provided the right means of treatment is adopted. Of course, for the ethmoidal, sphenoidal and frontal sinuses the treatment is much more difficult, and the results are not so satisfactory. I had a very interesting case some time ago involving the frontal, ethmoidal and antral sinuses, in which I opened into the

frontal sinus and inserted a tube for the introduction of medicine, and began to wash out the pus through the frontal sinus just as I would the antrum with soda solution, then with peroxid of hydrogen, and following that with listerin, leaving a certain portion in the cavity to drain out naturally. This was a chronic case and my success was marked in handling it. The main point after making the diagnosis is the method of treatment, and above all things, do not make a large opening in the mouth to serve as a channel for infection from saliva.

Dr. Frederic D. Owsley—The statistics of Fränkel, recited by Dr. Gradle, are very striking in demonstrating the frequency of diseases of these cavities. The fact has impressed itself upon all rhinologists of late that the frequency of these diseases is much greater than was supposed a few years back. For a number of years I, with many others, was inclined to scoff at the claims of Woakes in regard to the frequency of the occurrence of ethmoiditis, but in the past two years I have been surprised by the number of cases of diseases of these cells that have come under my observation. I have never been able to demonstrate to my satisfaction the existence of that form of ethmoiditis which Woakes describes as necrosing ethmoiditis.

I have found certain local conditions in diseases of the ethmoid and frontal sinuses of which I have noted no mention in the literature or discussions on the subject, and which I consider as pathognomonic of diseases of the accessory sinuses.

In both the catarrhal and suppurative forms of inflammation of the frontal and ethmoid cells, I have found almost constantly present a circumscribed tumefaction or intumescence of the septum, located just below and in contact with the middle turbinated, which hides that body from view. When this tumefaction is reduced by the application of cocain or pressed aside with a probe, you find in the simple catarrhal form an incrustation of the middle turbinated, and in the purulent form you see the pus oozing from under the end of the middle turbinated. I have observed this intumescence of the septum only in those cases where the upper cells were affected, although it seems that it might in reason be expected to occur in disease of any of the cavities which open into the infundibulum, as it is probably caused by the continued irritating discharge against the septum at that point.

In the treatment of diseases of the frontal sinus and ethmoidal cells, it has been my custom to establish free drainage by reducing the intumescence of the septum with the cautery, and by removing the anterior half of the middle turbinated, this procedure may, with proper cleansing, in time achieve a cure, but frequently it only gives relief from pain and distress caused by retention, a radical operation by way of the frontal sinus being the only way of effecting an absolute cure.

In regard to diagnosis of diseases of the antrum, I agree with the gentleman who preceded me, and place little confidence in translumination as a means of diagnosis. In several cases where translumination showed no characteristic differences, I have found pus in the cavity on aspirating. I use for this purpose the long curved aspirating needle of Krause, which I introduce into the antrum through the middle meatus at the point of Zuckerkandl's fontanelles, which, as you know, are only separated from the nasal by mucous membrane.

The locality of pain as a factor in diagnosis of diseases of the antrum I consider of deceptive and uncertain value. In some cases it is local and confined to the side affected, but frequently it is general or situated away from the point of the disease. In these cases I have frequently had the pain described as located back of the eyes or in the orbit.

In reference to the operative procedures mentioned, I believe with Dr. Sudduth that draining into the mouth is the least satisfactory way. In my experience, I have never obtained good results by mouth drainage. The operation I prefer for the purpose of establishing drainage in diseases of the antrum is that of suturing the cavity through the anterior part of the inferior meatus under the turbinated, by means of the drill or a large curved trocar, and into the opening insert a curved metal tube for the purpose of washing out the cavity and keeping the opening open. The treatment of these diseases by any of the tested methods have in my hands been exceedingly unsatisfactory, for the reason that it has always required months of treatment, and sometimes years, without effecting a cure. I believe that in quite a number of the acute cases immediate operative interference is imperative, the indications for which are severe pain, marked constitutional disturbances, fever and swelling of the face over the antrum. In the chronic cases that do not succumb to prolonged and faithful treatment, I favor the radical operation of a large opening through the anterior wall of the antrum with the chisel and a thorough curetting of the interior of the antrum, and packing with gauze.

Dr. Edward T. Dickerman—The subject under discussion is one in which I am extremely interested, and the remarks made by Dr. Gradle in regard to acute conditions of the antrum were of very great interest, showing how frequently in the acute exanthemata and also in pneumonia, the accessory sinuses are involved. Right here we have the seed sown which in after years may develop into purulent or catarrhal condition of these parts.

The essayist also referred in his remarks on the diagnosis of this condition to not being particularly in favor of translumination. My experience corroborates what the Doctor has said in regard to this point. In some cases where there is a catarrhal condition of the frontal sinus that has existed for a long time we will get decided symptoms; that is, on one side you will have the frontal sinus well illuminated, while on the other it is practically opaque. In these cases, as a rule, you may depend upon translumination, but in the antrum it is of no value practically. I had expected to hear more in regard to the appearances of the middle meatus in diseases of the various sinuses. If you recall your anatomy of the nose, the antrum of Highmore, the frontal sinus, and the anterior ethmoidal cells open into the middle meatus, the sphenoidal and posterior ethmoidal cells entering into the superior meatus. Anteriorly, you have the opening of the frontal sinus into the infundibulum, posterior to this you have an opening into the ethmoidal cells, and below and behind you have the opening into the antrum of Highmore. This is of extreme importance in the diagnosis of these conditions, as well as in the treatment. The mucous membrane of the middle turbinate covers over the infundibulum and the processus uncinatus, and when you have an acute condition with edema, or an exudate, the orifices of these three sinuses are thoroughly occluded. Then we begin to have symptoms of trouble in any one or all of these cavities. If the condition has existed for weeks or months we have a thickening of the mucous membrane; we have the formation of granulation tissue or may have polypi, and these conditions all tend toward the occlusion of the orifices, in that way establishing a catarrhal or purulent condition which extends by continuity and by stasis into these cavities. Another point that should be considered with reference to the diagnosis is that the processus uncinatus acts and constricts the trough, the trough being the infundibulum. If you have a catarrhal condition of the ethmoidal cells, or a necrosis of the ethmoid, or if you have an empyema of the frontal sinus, the processus uncinatus can guide the pus through the hiatus semilunaris and deposit it in the antrum of Highmore, and the latter acts as nothing more than a reservoir for pus produced in the other cavities.

In the diagnosis of these conditions the first thing to be considered in diagnosticating an inflammatory condition in the antrum is not only the use of translumination, but to go into the antrum through the natural orifice. This can be accomplished in over 10 per cent. of the cases. If you have hypertrophy of the mucous membrane, polypi, or granulation tissue along the processus uncinatus, remove it. It is not necessary to remove the anterior end of the middle turbinate. By removing the hypertrophied tissue contracting down the mucous membrane, you are able with Hartman's syringe point to get into the antrum, to wash it out and irrigate thoroughly. Very often you can make a diagnosis of the condition of the antrum in this way. If you find either a catarrhal condition, or a muco-purulent discharge from it, then operative procedures are to be considered. Pathologic conditions of the frontal sinus can often be diagnosed through the natural opening and we believe this can be done in 50 per cent. of the cases. If the opening in the frontal sinus enters into the infundibulum high up you can enter that with a probe, and watching the probe as you withdraw it you will be able to see pus trickle down. If that is not the case, you can enter the sinus with a curved syringe point and thoroughly wash out the cavity. If you find the fluid mixed with pus, you are pretty sure of your diagnosis.

(To be continued.)

Chicago Pathological Society.

Regular meeting October 12, 1896.

Dr. James B. Herrick, the President, in the Chair.

Dr. Geo. H. Weaver read a paper entitled "The Bacteriologic Contaminations and the Preservation of Vaccine Lymph; Glycerin as a Bactericide." (Will appear next week.)

Dr. Hugh T. Patrick made some remarks on

ARTEFACTS IN THE EXAMINATION OF THE NERVOUS SYSTEM,

with demonstrations.

I wish to call attention this evening to a few things that might lead us to false conclusions in making a microscopic examination of the nervous system, and which might allow us to accept the false conclusions of others as found in their writings. As my time is restricted, I shall limit the subject entirely to the examination of the spinal cord, and shall touch upon only a few of the principal artefacts found in such examinations. By an artefact I mean an accidental artificial product. Of course, the red carmin stain is strictly speaking, an artefact, but we understand what the red means, we cause it on purpose and do not class it as an artefact. Some of these accidental productions are, I think, not entirely understood by some men who do microscopic work, but do not do a great deal of work on the nervous system, and I think attention ought to be called to this. In justification of this assertion, I might mention a recent article which appears in what is perhaps, the best neurologic journal that we have, namely, the *Deutsche Zeitschrift für Nervenheilkunde*, in which the author describes the microscopic appearances of the cord in a case of pernicious anemia. From his findings the author attempts to overturn all pre-established pathology of the changes which take place in the cord in pernicious anemia. Judging from the description of the histologic changes, and from the one cut or illustration of the entire cord section, the lesions on which the author bases his difference of opinion from previous investigators are as palpable artefacts as can be produced. Anyone acquainted with the subject would recognize the greater part of the pathologic findings as artificial products having no connection with disease. There is a peculiarity in this unaccountable scientific blindness. The author even alludes to a fissure which runs into the cavity, which he describes as a pathologic product, and says that this fissure may be due to injury of the cord in removing it. He does not seem to think of the possibility that the entire pathologic finding in the gray matter might also be due to postmortem injury.

One of the first things in the examination of the cord is artificial heterotopia, which means the malplacing of the various histologic elements. A number of cases have been described as being due to congenital defect. Great credit must be given to an American pathologist, Van Gieson of New York, who was the man to show that nearly all, if not all, of these cases are due to postmortem injury. His conclusions and findings have never been disputed. In these cases there are a number of deformities, several varieties of which I have set up under the microscope. You will observe one section in which the posterior horn is missing; another section in which most of the anterior horn is missing, and two or three other cases in which there is marked deformity of the gray matter. I would say that these artefacts are apt to affect particularly the gray matter, because it is less resistant, whereas the white matter may not show any results of injury at all. While you may find marked microscopic changes, there may be nothing abnormal to be seen by the naked eye. How are we to tell that a certain deformity is an artefact, that is not due to disease or to congenital malformation? In the first place, evidences of acute disease, or of acute inflammation, of proliferation of cells, of nuclei, certain vascular infiltrations, are absent. In the second place, evidences of chronic disease, proliferation of neuroglia, the symmetrical disappearance of nerve fibers and a thickening of vessel walls are absent. Next as to positive evidence of postmortem injury of the white matter of the cord. When we make a cross section of the diseased or normal spinal cord we cut the fibers of the white matter transversely. We have for each fiber the axis cylinder surrounded by the myeline sheath, and a cross section of the white matter means a collection of these, close together in normal cords, separated by neuroglia in sclerosis. Of course, there are all sizes of fibers in the spinal cord. In the case of an artefact, instead of having a symmetrical, nicely cut cross section, the fibers may be strung out in strands, or they have a peculiar slanting appearance. Instead of being round they are oval, showing that they have been cut in a slanting way. In many instances a number of fibers loop around a vessel. It is evidence that in the postmortem violence to the cord the vessel has been drawn athwart the less resistant nerve fibers, which have looped about it, like seaweed about a taut fish-line. Within the loop and, so to speak, behind the vessel is an area in which there is very apt to be a homogeneous substance, the nature of which I do not know. It takes all stains poorly. I have seen it repeatedly described as an exudate, or as a transudate, the result of various changes which never existed.

Another thing is the so-called rarefaction of white tissue in the cord, which practically does not exist antemortem. There is scarcely such a thing as rarefaction due to disease. I have set up a couple of slides illustrating this. If you take a section in a case of postmortem deformity you are pretty sure to find so-called rarefaction, and it means, in the first place, that the fibers do not stain well when torn. Then the fibers instead of being close together are separated by large intervals which are not filled with neuroglia tissue or infiltrated cells. This can scarcely be anything but an artefact. These interspaces are irregular and the fibers themselves are irregular, but you can judge better what they are like by looking at the specimens.

Another thing that is frequent as an artefact, and which is easily understood, is pulling out of the posterior root fibers in the cord, which make an apparent degeneration of the zone of Lissauer. This zone has peculiar fibers, is important pathologically, and I have seen it described in various reports as degenerated, when there was no apparent reason for it. The posterior root has been given a pull, say in removing the cord, and as many of the root fibers enter close to and through Lissauer's zone, the fibers of the latter are disarranged and lacerated and consequently do not stain well.

Another thing that is frequently described as degenerated is the subpial layer around the cord, the periphery of the anterolateral tract. In the absence of meningitis, this is nearly always an artefact. If the cord be exposed for a long time before putting it into the hardening fluid, this outer layer will suffer. If the hardening fluid has not been good and the cord become partly decomposed, or if the sections are not properly handled, this area often changes; therefore it is called degenerated when the true evidences of degeneration do not exist.

Speaking of poor staining; the sections do not always stain uniformly. It may be impossible to say why. One section lies upon another in some cases, or the sections are folded over, and consequently stain irregularly. The resulting pale patches or streaks have been described as pathologic, when the only trouble was that the stain did not take well. This is especially true of the carmin stain which is perhaps most generally used. The Weigert stain, also much used, may give a black patch, which does not differentiate well, and may hence be called degenerated. When the material has not been hardened well it is apt to stain irregularly and poorly, and hence false conclusions may be drawn.

Again, rarefaction and vacuolation of nerve cells hardly ever exist. Groups of pigment in ganglion cells, which are quite normal, do not take stains well and are called vacuoles and granules and various other pathologic things. It takes a very successful stain of any kind to get the processes of ganglion cells well, and the disappearance of the processes is often attributed to some disease, when it is due to nothing but a poor stain. I have set up but one example of this. You will notice four or five cells in the field in which there is scarcely a process or a nucleus to be seen, and the cells also look granular. It is simply a poor carmin stain, the result of imperfect hardening or the age of the specimen.

In the article I have previously referred to there were cavities described in the anterior horns, as well as a peculiar condition of the gray substance. Cavities in the gray matter, as a result of postmortem staining, are not very rare. I have set up three slides showing this. One of them is from a rabbit the cord of which I took out myself. The cord shows all the marks of an artefact, a cavity in the gray matter, some twisted strands of fiber and artificial "rarefaction."

I have set up a section showing the loss of one of the posterior horns, and another similar Weigert stained section, showing the fibers occupying the position that the gray matter ought to occupy. Looking at this, you see that instead of being cut transversely as they should be, if the posterior horns were congenitally deficient, the fibers are all twisted into waving, irregular strands, which stamps the condition at once as an artefact.

DISCUSSION.

Dr. LUDVIG HEKTOEN—Dr. Patrick's remarks call our attention to the importance of fully understanding the artefacts of the nervous system. Although I think some of the statements are rather broad, yet we must acknowledge that these words of caution are timely and valuable. While artefacts of the nervous system are frequently mistaken for morbid changes, yet it may not be entirely amiss to say that care must be taken not to interpret obscure pathologic conditions as artefacts. One frequent method of producing very serious artefacts in the spinal cord occurs from the careless removal, either by reckless use of the chisel and hammer, which should be entirely avoided, or by twisting or bending, and it is particularly this class of artefacts and the resulting so-called heterotopia which Van Gieson has studied thoroughly.

In studying the spinal cord microscopically, it would always be well to so cut the cord as to have serial sections. This is the only way in which we can obtain an exact idea as regards the cells as well as a complete idea of the various cavities which may be encountered.

I have noticed the section upon which there is an absence of one horn. The question would be, What has become of the horn? It does not seem crowded into the other part of the gray matter, but it is completely absent from this section. Serial sections might throw some light on the subject.

Dr. Patrick makes the statement that the carmin stain is the one most generally used in doing microscopic work on the nervous system. I would take exception to that statement. The carmin stain is not used as frequently as some other stains, such as the Weigert stain, and I can see no good reason why it should be used as much as it is even at the present time.

Dr. E. R. LE COUNT—I would like Dr. Patrick to give us some directions concerning the removal of the cord so as to prevent the production of artefacts.

Dr. PATRICK—In answer to the last question the method is simply to remove the cord with extreme care, avoid using chisel and hammer and never pull on a nerve root before it is completely cut. Never hang the cord up with a string, never lay it down to harden on a hard surface; lay it on cotton and have cotton between it; never bend or twist it; never put anything on top of it. Be careful in cutting and opening the membranes; in other words, treat it with the greatest possible delicacy. These are simple general directions. One of the most important directions of all is not to trust the removal of the cord to an incompetent assistant, especially to some supernumerary about a hospital, who does not care whether he gets the cord out in one piece or two. As regards Dr. Hektoen's remark, not to take a true pathologic condition for an artefact, the caution goes without saying.

With reference to what I said concerning the carmin stain being the most frequently used, he may be entirely right about that, as I have no statistics on the subject. I think I corrected myself by saying that the Weigert stain was used, perhaps, as much as the carmin for all purposes. I think the carmin stain is most frequently used for nerve tissue, taking all examiners together. The best men do not rely upon it, and I suppose Dr. Hektoen does not. It is one of the oldest stains and if the doctor will think he will remember that in scarcely any report is the carmin stain omitted. Some other stain is left out, but the carmin is always used.

To the question as to where the missing posterior horn in the section went, I should answer from the work of Van Gieson that it went either up or down. It is not in this section.

The longitudinal fibers of the cord within the white substance run parallel up and down, and it is not a difficult matter, as Van Gieson showed by experiments, to compress the cord without destroying the white fibers and thus squeeze the putty-like gray matter up and down. The white fibers reassume their original arrangement with the gray matter missing at a certain point. Serial selections, if carefully made, ought to reveal a decided difference. The point I wish to make is, that where there is such a deformity in the gray matter the white matter will show it to a knowing examiner. In illustration I have set up another section with the fibers stained, showing the abnormal arrangement of the fibers in the space where the gray horn ought to be.

(To be continued.)

SELECTIONS.

Live Questions in Operative Gynecology.—Prof. Fränkel of Breslau has recently published a résumé of his gynecologic work during three years from 1893 to 1896. He calls his pamphlet, "Live Questions in Operative Gynecology," (*Tagesfragen in d. Operative Gynecologie*), because he considers in the light of experience and judges by their results various disputed modes of treatment and points of technique. The report is characterized by frankness and modesty, and the effect of it is to support the well-known conservatism of its author. He tabulates some 250 operations covering practically the entire field of gynecology, and also adds chapters on anesthesia, asepsis and after-treatment. His explanations are so detailed and so clear that one can derive almost as much profit from reading the book as he could from atttending the author's clinics. The following synopsis may be interesting to the readers of the JOURNAL.

1. *Anesthesia.*—Fränkel considers that the question as to the superiority of chloroform or ether is not yet definitely settled. He prefers chloroform, believing that ether merely postpones but does not diminish the danger of anesthesia. The after-effects of ether may be as serious as the immediate effects of chloroform. He always precedes the use of either anesthetic by a hypodermic injection of 1 c.c. of this solution: Morph. mur. 0.15; atropin. sulph. 0.015; chloral hydrat. 0.25; aquæ dest. 15.0. He states that as a consequence, much less of the anesthetic is required to produce and maintain full narcosis.

2. *Asepsis.*—His aseptic precautions are much the same as those of other surgeons, except that his patients receive a bath after all preliminary preparations and immediately before the operation. Wrapped in sterile sheets, they pass from the bath room to the operating table. For the hands, he uses rather coarse pumice-stone soap. For operations on the vagina and perineum as well as on the abdomen (before opening the peritoneum), dry gauze is used; but for the peritoneal cavity, moist gauze napkins wrung out directly from the boiler are employed. He imitates Mickulicz in having a glass bead attached by a thread to each napkin, the bead hanging outside the incision, so as to make sure that none will be forgotten or lost in the cavity. For ligating the pedicle, sewing the abdominal wound and for perineal and cervical operations, he prefers black iron silk of American manufacture. Catgut is used as seldom as possible.

3. *Ovariotomies.*—The diagnosis should be, if possible, clearly established before beginning the operation. Those surgeons are to be condemned who, relying on the security which asepsis gives, consider an exact diagnosis as superfluous and who first open the abdomen fully deciding on the exact measures to be adopted. Examination in narcosis is seldom necessary before celiotomy, since a diagnosis of ovarian tumor can be certainly made by palpation, percussion, and the combined recto-vagino-abdominal exploration. In contradiction to Olshausen's opinion that malignant ovarian tumors cause early amenorrhea, Fränkel finds them accompanied by copious menorrhagia and metrorrhagia. He notes that if hemorrhages occur in an elderly woman with an ovarian tumor, though the uterus is little if at all enlarged and though the microscope finds no signs of malignancy in the scrapings of the uterus, the operator should not forget the probability that the tumor is malignant, and he should take precautions not to rupture it nor to inoculate the other tissues. The coëxistence of pregnancy should be an additional strong reason for operating. Abdominal section is to be preferred unless the tumor is small and movable, when a vaginal ovariotomy may be made.

4. *Operations on the uterine adnexa.*—When tubal pregnancy is clearly diagnosed before rupture, it ought to be removed as soon as possible. Should rupture have occurred

with free hemorrhage into the abdominal cavity, Fränkel does not operate as a rule. He relies upon absolute rest, ice bag, opium and avoidance of stimulants to stop the hemorrhage. He has found this expectant treatment sufficient. The hematocele will gradually be absorbed; should it however, keep on increasing, he would make a celiotomy, or should it become infected he would open it through the vagina. He admits that his opinion in this matter is not modern, but his experience in numerous cases shows the superiority of the expectant treatment.

It is a matter of surprise that Professor Fränkel operated only eleven times for pus tubes and pus ovaries. He is no friend of hasty operation in these cases and claims that such tumors, even as large as one's fist, bilateral as well as unilateral, sometimes entirely disappear without treatment. In many cases puncture or incision through the vagina, followed by boric acid injections, produced permanent cure. This simple procedure is not dangerous and may be repeated as often as may be necessary. The major operations in the eleven cases were necessitated by failure of the simple method, by relapse, or by the size or inflammatory condition of the tumors. Operation should be postponed till the acute stage has passed, and in the meantime palliative treatment with ichthyol tampons, etc., should be followed. The advantage of this delay is that the pus loses its virulence, inflammatory products are absorbed, and the sac becomes, if not movable, at least distinguishable from the surrounding tissues. The time when pus loses its virulence is not known, but it can be said that at least twelve weeks should elapse after an acute septic or gonorrheal infection before operative measures are adopted. If, however, repeated relapses occur or if an exhausting fever continue, exception should be made. In these exceptional cases, the Péan-Segond method of total extirpation through the vagina is preferable to celiotomy.

5. *Myotomies.*—Fränkel does not agree with the wide-spread opinion that every myoma should be at once removed on account of the danger of malignant degeneration. He holds to the old conservative view that ovarian tumors must at once be removed, but uterine myomata only if they show rapid growth or cystic degeneration, if there is suspicion of beginning malignant degeneration, if they produce ascites or pressure symptoms, or if they cause hemorrhage that can not be stopped by palliative means. Especially if the patient is near the climacteric surgeons should wait, and if finally they operate castration should be preferred to myotomy. Quite the reverse of ovarian cysts, malignant degeneration occurs comparatively seldom in myomata. He has had several hundred cases of the latter under observation for considerable periods, and only in one did such degeneration occur. As to choice of methods, if the tumor were large, interstitial, subperitoneal, or intraligamentous, he made a supravaginal amputation. In two cases (both fatal), in order to shorten the operation he followed Traub's methods, *i. e.*, he allowed the rubber ligature (a Nélaton catheter) to remain *in situ*, thus saving the time required for stitching and dressing the stump. In two cases (one fatal) he used Martin's procedure of celiotomy, followed by enucleation of the tumor.

6. *After-treatment of celiotomy.*—During the first twenty-four hours the patient receives absolutely nothing to eat or drink; no ice pills, no soda water, no rinsing of the mouth, absolutely nothing. This best stops the nausea and tendency to vomiting. If pain is great, the mixture of morphin, atropin and chloral is given hypodermically. If collapse threatens, he uses subcutaneous injections of ether, camphor or saline solution, or rectal and intravenous injection of the latter solution. To avoid danger of cystitis, the catheter is not used after either operation or confinement. He trains his patients by requiring them for several days before the operation to urinate in a recumbent posture. Further, the privation of all fluids in the first twenty-four hours diminishes the need to urinate. As to the few patients who really seem unable to urinate when recumbent, he would prefer to allow them to sit up on the third or fourth day after operation or delivery rather than to catheterize them. On the second day patients receive tea in tablespoonful doses every half hour, and fluid diet is continued until the third or fourth day, when a dose of calomel or castor oil is given to produce the first bowel movement. If it fail a high injection is made. Stitches are removed on the eighth or ninth day; but in ventral fixation the two or three ligatures which transfix the uterus remain fourteen days. A pressure bandage is worn for at least four weeks. Separation of the edges of the wound and consequent ventral hernia occurred in two cases. The consensus of opinion among operators is that no method of stitching will prevent hernia. The best protection is given by careful stitching, rest in bed for a sufficient length of time and a firm pressure bandage. As to drainage, Fränkel considers it useless for removing pus or pathogenic germs. If the pus sac has ruptured and if the pus is virulent and has infected the peritoneal cavity, Mickulicz's drain can not help; if the pus is not virulent the drain is needless. He uses the Mickulicz tampon only to stop bleeding where direct ligation is not possible or to fill out a dead space.

7. *Total extirpation of uterus.*—The author would not operate for malignant growths unless there is a possibility of radical cure; if the parametria, vagina, etc., are involved he gives palliative treatment by curette and cautery. He has had cases under observation three years after this treatment without relapse. When the major operation is done, he prefers vaginal hysterectomy, taking also the ovaries, unless the tumor is too large. In two inoperable cases he tried serum injections without, however, any beneficial result.

8. *Ventral and vaginal fixation*—Twenty ventrifixations were performed for retroflexion, in eight of which on account of prolapse, a supplementary combined operation of anterior and posterior colporraphy and perineorraphy was added eight or ten days later. The results were excellent, and the combined operations took less time than amputation of the cervix. In fact, the elongated cervix shortens of itself, the tension of the vaginal walls at their cervical insertion being relieved by the ventrifixation. Fränkel has always been an advocate of orthopedic treatment of retro-deviation provided the uterus can be lifted up. His experience is that persistent use of suitable pessaries brings about a cure. Comparing the small number of his cases (sixteen) in which he deemed the operation of vaginal fixation necessary, with the large number (up to 235) of other operators during the same three years, he wonders what were the indications and fears that many a uterus was punished for an offence of which it was not guilty. He agrees with Olshausen in the opinion that there are many retroflexions, entirely free from symptoms and which need no treatment whatever. Furthermore, in women beyond the climacteric, the cause of their symptoms is usually not retroflexion but endometritis, and if this is cured, the retroflexion will produce no trouble. However, if prolapse is present either pessary or operation is required. There are so very many nervous hysteric women in whom retroflexion exists, though it does not cause their symptoms. Operation will not relieve them. The cases suitable for vaginal fixation are uteri held back by adhesions which do not yield to massage or forcible divulsion. Suitable cases also are movable uteri which relapse into their old retroflexions in spite of pessaries, etc., the cause here being that cicatrices from cervical tears draw the cervix forward or that the adnexa are dislocated and adherent to the posterior fold of the broad ligament. Martin and others hold that in fixed retroflexion, the cause of the symptoms is not so much the displacement as the adhesions and products of chronic perimetritis. Fränkel says that it is not merely sufficient to break the adhesions, but that the uterus ought to be attached and kept in position forward, if for no other reason, to prevent the torn surfaces from again

becoming adherent. As technique, he follows Leopold and Czerny in attaching the anterior surface of the fundus (in its intestinal zone) to the parietes, not higher than two finger-breadths above the symphysis. In all cases he opens the peritoneum and examines the condition of the organ.

In vaginal fixation, he has tried both Mallinckrodt's method, in which the peritoneal fold between bladder and uterus is not opened, and Dührssen's, in which it is opened. The former does not affect subsequent pregnancies injuriously; while in the latter, the incision into the anterior Douglas cul-de-sac causes a cicatricial ring which interferes in delivery with the dilatation of the os and the withdrawal of the lower uterine segment over the child's head. Furthermore, when the uterus is turned down through the incision, the fixation stitches are inserted in the fundus and produce a forced anteflexion; while in Mallinckrodt's method they are inserted not much higher than the inner os. Neither method excludes vaginal and perineal plastic work, which should always be done. In all these fixation operations, the stitches are allowed to remain from fourteen to twenty days. Twice he successfully performed Wertheim-Schauta's operation for retroflexion, namely, shortening the round ligaments through a vaginal incision.

9. *Submucous myomata and polypi.*—The introduction of asepsis worked a revolution in the treatment of these cases. Formerly, the enucleation had to be completed at one sitting; but now the morcellement may be divided into as many stages as may be necessary, because the use of iodoform gauze between the sittings both stops the hemorrhage and prevents sepsis. It is, however, desirable to complete the operation at one sitting if it can be done without endangering the uterine walls. Doyen's method of splitting the anterior wall of the uterus through the vagina, removing the myoma and stitching the uterus, meets approval. If inspection shows that many myoma kernels are present or that they penetrate close to the peritoneum, vaginal extirpation can be done. Even if suppuration of submucous myomata should occur, the prognosis is not so bad as formerly, because the radical measure of extirpation still remains. As to electricity, if the slightest doubt exist as to whether the myoma is interstitial, electricity should not be employed, because it not only will not stop the hemorrhage, but it will likely cause ulceration and infection.

10. *Perineorrhaphy and colporrhaphy.*—Operation is indicated in all lacerations of the perineum, even small ones, if attended by spreading of the vulva, and in all prolapses of the vaginal walls except senile prolapse. The alternative is the pessary. Fränkel is not fond of the pessary; he finds it to be the cause of colpitis and fetid leucorrhea, even where it holds up the prolapse. In the case of old women, no treatment has succeeded in preventing relapses, and for them he uses a pessary, preferably an egg-shaped ball of glass. In plastic surgery, the aim is to cut away as little as possible and simply to unite what has been separated. He disapproves of amputation of the cervix, which many combine with every colpo-perineorrhaphy. The abuse of Emmet's operation must also be classed as gynecologic meddlesomeness. He operates only when there is pronounced ectropion, or when cicatrices spring from the laceration along the vaginal wall and cause distinct symptoms, or finally when reflex neuroses are clearly due to the laceration; but he finds that the tears are again torn open in subsequent confinements.

In anterior colporrhaphy, Fränkel prefers Fehling's method of a bilateral incision, to which he adds removal of the hypertrophic tissue near the urethra, because this particular mass is apt to protrude and keep up the sensation of falling out, even after the perineum has been restored. He uses catgut so as to avoid the necessity of stretching the vagina and perineum for the removal of the stitches.

In posterior colporrhaphy and perineorrhaphy, the chief thing is to properly separate the flaps, *i. e.*, to keep in the true layer between the vagina and the rectum. If the tear extends into the bowel, he turns the freshened edges into the lumen of the bowel and unites them with fine non-penetrating catgut sutures. The dry method of operating is used exclusively. During the first eight days as little manipulation as possible is allowed. Not even the catheter is employed; normal urine does not interfere with healing, but it should be dried off with absorbent cotton. Bowel movement is procured on the fourth day. In all his cases union by first intention occurred, but in one he had the rare experience of an utero-vaginal fistula.

11. *Inverted uterus.*—In two cases of irreplaceable inverted uterus after confinement, he followed Kaltenbach's method of amputation. A rubber ligature was fastened around the cervix and stitched in place with catgut sutures; the corpus uteri was cut off about 2 cm. external to the ligature; and the edges of the peritoneum which lay in the opening were united. The ligature came off in sixteen days. Both patients recovered; there was no forced climacteric, and menstruation was normally resumed. Hence this method is much preferable to the total extirpation suggested by some authors.

12. *Curettage.*—This operation, slight but not free from danger, is overdone and abused. It is useful for diagnostic purposes though sometimes misleading. As a therapeutic measure it is used in septic endometritis, abortion and chronic endometritis. In the first it is harmful, opening as it does new doors to infection and breaking down organized thrombi; and on account of its unsatisfactory results it has been entirely discarded in Germany. In abortion, the curette is not advisable. There should be no interference with nature's process unless there is danger to the patient's life, as from severe hemorrhage, decomposition, etc. If the abortion is inevitable, the aim should be to extract the ovum in its entirety, and the curette will certainly defeat this aim. The insertion of iodoform gauze into the uterus and tamponing of the vagina with cotton will stimulate pains, stop hemorrhage and lead to the expulsion of the ovum. If it fail to do so after twenty-four hours one should extract with the finger. The curette should be used only when small adherent bits of decidua or placenta keep up hemorrhage and the os is but little dilated.

Fränkel is especially opposed to curetting in catarrhal endometritis whether gonorrheal or not, because it opens new wounds and favors the deeper inroad of the cocci. It should be used only when menorrhagia or metrorrhagia is present, and it should be followed by a series of ten or twelve intrauterine applications of tinct. iodin or solution of ferripyrin. The curette should never be introduced without a speculum (that is, under the guidance of the eye). The external genitals and vagina having been carefully disinfected, a bimanual examination is made to determine the direction of the uterus, which is then hooked down, sounded to determine its internal condition, washed out and finally curetted with a large instrument. Speaking of possible perforation, Fränkel says that if the operation is aseptic such an accident has usually no bad results. If one suspects that he has perforated, he should withdraw the instrument, avoid irrigation, place an iodoform gauze tampon before the os and keep the patient recumbent for a few days, using an ice bag and opium if necessary. After curetting, he irrigates again, and if bleeding continues, paints with ferripyrin solution; otherwise he merely lays an iodoform tampon before the os.

Old perimetritic adhesions are not a contraindication to aseptic curettage; but acute or subacute inflammations of the adnexa, and especially accumulations of pus or blood near the uterus are contraindications. After a brief rest, the patients are allowed to go home with the instruction to remain in bed for two days. Intrauterine applications are made at intervals after the fourth day.

The author concludes with the warning that long continued gynecologic and intrauterine treatment is injurious, especially to nervous patients. DAVID JESSUP DOHERTY, M.D.

The "Mirror" Reflects.—The versatile editor of the St. Louis *Medical Mirror* says in the November number: "Speaking of criticism brings to my mind some of our editorial fraternity who are constitutional kickers and ever on the lookout for the weak spots in the armor of their competitors, or I would rather say colleagues. They never see anything but blemishes or distorted pictures; they seem to be unable to praise anything; I doubt if they would be able to get their consent to praise God, from whom all blessings flow. But don't blame them, they are built that way; they have my sincere sympathy, and that leads me to say that I agree with Ras Wilson, the Philistine, when he says: 'Young man, write as you feel, but try and feel right. Feel good humored toward every one and every thing. Believe that other folks are just as good and just as smart as you, for they are. Give 'em your best and bear in mind that God has sent 'em in his wisdom all the trouble they need and it's for you to scatter gladness and decent, helpful things as you go. Don't be too particular about how the stuff will look in type, but let 'er go—some one will understand. This is better than to write so dosh bing high and so tarnashun deep that no one understands—let 'er go!' Permit me to say further that while I invite criticism and even enjoy it and try to profit by it, and love commendation, I propose to go on sawing wood, sawing it on my own wood pile, and running the *Medical Mirror* energetically and aggressively without waiting for the consent of other nations."

PRACTICAL NOTES.

Thyroid Therapeutics in Stunted Growth.—Schmidt of Frankfurt, describes in detail in the *Therap. Woch.* of November 15, his success in securing renewed growth in many cases of retarded development, with one thyroid tablet a day, continued for a year and a half to two years, omitting the tablets every fourth week. His practice was a tablet of 0.05 under 4 years; 0.1 from 4 to 7; 0.15 from 7 to 14, and 0.3 over 14. This prolonged medication produced no inconveniences, and the patients gained in weight as well as height, after the first week or so. Some grew 12 cm. in a year and a half, others from 6 to 11 cm.

Treatment of Prolapsus Uteri at the French Surgical Congress.—Bouilly's fine and practical address emphasized the advantages of massage and special gymnastics in the early stages, and advocated operating on the vagina and perineum, also the amputation of the cervix. He always completes hysterectomy by plastic operations, but reserves this for the severest cases and for elderly women. All the gynecologists seem to be growing to regard hysterectomy in young women with less and less favor. Is it the decadent birth rate which has raised up so many champions of the uterus in these latter days? asks the *Province Médicale.*

New Method of Rhinoplasty.—Israel is justly satisfied with an operation he performed recently on a young woman to restore the nose. He applied a flap from the ulnar side of the forearm, with a small piece of the ulna itself to make a bony frame for the new nose. The piece of bone was not cut entirely out of the ulna until it had been fitted into place in the nose, when it was sawed off slanting the exact shape required, and the cutaneous flap was then fitted over it. Six sittings were necessary to complete the operation, and the arm was immobilized in a cast, as usual when only the cutaneous flap is applied.—*Deutsche med. Woch.*, November 12.

Treatment of Talipes at the French Congress of Surgery.—Forgue's address was an appeal for early and protracted treatment and, according to the gravity of the case, manual reposition with anesthesia. He believes, but without enthusiasm, in the success of Vincent's tarsoclasis, and in purely orthopedic means, and is a warm advocate of the Phelps' modified by Kirmisson (opening of the medio-tarsal articulation). Operations on the bones should be reserved, he says, for the very gravest cases. In the discussion, Reboul, Calot and Martin proved strongly conservative; Boekel and Jalaguier are radical, while Doyen and Championniere are absolute anarchists, stating that the more of the bony structure is removed, the better the foot performs its functions.—*Prov. Méd.*, November 14.

Operative Treatment of Tuberculous Pneumothorax.—Some advocate puncturing as often as there is danger of suffocation, but Unverricht does not approve of this at all, and considers the only rational operation the making of a permanent fistula, keeping it protected by a wire basket over it, with a bandage just below to catch the secretions, without closing the mouth of the fistula. This applies to all cases in which there is a probability that the lung will in time expand normally, but if there is no hope of this, then the operation will do more harm than good. Even in advanced tuberculosis, the pneumothorax often heals completely. The incision is made in a space between the ribs, and he believes that many more patients will be saved when surgical intervention in pneumothorax is more generally adopted.—*Cbl. f. Chir.*, November 14.

Pneumotomy in the Treatment of Hydatic Cysts of the Lung.—Tuffier has collected the statistics of 58 pneumotomies on record for the relief of hydatic cysts of the lung, and 71 pleurotomies with 2 deaths, and 4 interventions in non-suppurated central cysts. He advises the oblique thoraco-abdominal incision on the rear edge of the axillary line, on account of the extreme difficulty of differentiating a cyst in the lung from one in the liver, as the neoplasm pushes the lung so far out of its normal position. He concludes that pneumotomy is the operation to be preferred, as it has given over 90 per cent. of recoveries, while medical expectation has entailed a mortality of 64 per cent. He prefers chloroform in these cases to ether, and advises long tamponing to avoid danger of hemorrhage.—*Presse Méd.* October 24.

When to Operate in Appendicitis.—Gersuny does not believe in indiscriminate operating, but restricts it to three forms of appendicitis: 1, the patients that demand intervention themselves on account of persisting abdominal distress; 2, when the suppuration is of a progressive character, and threatens perforation, and 3, when the perforation has occurred and there is general peritonitis, which cases require operating at once. He has cured two patients four hours and twenty hours respectively after perforation. An operation is strictly contraindicated in cases of extreme heart weakness. In ordinary typical cases, rest, opium and deprivation of food, are enough treatment. In atypical cases all preparations must be made to proceed to an operation if it becomes necessary. Where there is hope of spontaneous recovery, it is allowable to interfere, but where the danger is imminent it becomes our duty to interfere.—*Therap. Woch.*, November 15.

Treatment of the Ulcera Corneae.—These ulcers are apt to heal with extensive leucoma, and the usual methods of treatment that prevent this require skilled assistance which it is not always possible to procure. Akerblom describes his method in the *Therap. Woch.* for November 8, which is never followed by leucoma, and is so simple that no assistance is required. It is a modification of Mellinger's linear cauterization of all affections accompanied by swelling of the conjunctiva. As it is difficult to keep a sharp point on the caustic, he heats a silver sound in a flame and melts a drop of the caustic on the tip. After two or three drops of a 5 per cent. cocain solution have been instilled, he takes the patient's head in his left arm, and opens the affected eye with the fore and middle fingers of the left hand, while the patient, seated on a low chair, turns the ball in the direction away from the ulcer. The caustic is then passed all around the edge of the cornea, over the conjunctiva bulbi about 1 mm. from the peripheral edge of the cornea. He then lays the sound aside, neutralizes with salt solution, and

applies a sublimate compress, 1 to 5000, which the patient renews as necessary. After the scab falls, the operation is repeated, but is never required more than three to four times. His success has been invariable with this method, even in severe cases of hypopyon and threatening perforation.

New **Method of Circular Suture of the Intestines.**—E. Ullmann recently presented at a meeting of the k. k. Ges. der Aerzte in Vienna, a patient cured of a tuberculous neoplasm in the cecum by resection of part of the ileum and cecum. One end of the intestine was then turned inside and the other end inserted in it, like an intussusception, thus bringing the surfaces of the serous membrane on each end into contact inside the intestine for quite a little distance. A piece of carrot shaped like a cylinder, with a hole through it and a deep groove around the center outside, had been placed inside the intussusception. A strong catgut ligature was then made around it, fitting into the groove and pressing the two serous surfaces together. Gas passed through the first day and feces in a week, followed by rapid recovery. This simple operation requires but a couple of minutes and after the abdominal wound is closed the union is very firm, as the intestines grow together at once, and the carrot forms a strong enough support, which even force will not dislodge, as Ullmann states. He has found by various tests that the catgut remains unaltered long enough to accomplish its purpose.—*Wien. klin. Rundschau*, November 15.

Surgical Treatment of Cancer of the Stomach.—Kocher of Berlin states that gastrectomy for cancer is now an absolutely certain surgical operation, and that physicians generally should be informed of this fact, so that they can have their patients operated upon at the earliest possible moment, with the guarantee of almost certain cure. Péan reports numerous operations for cancer, but only twelve gastrectomies, with four deaths. In four cases of chronic ulcer of the stomach, accompanied by such pain that it was impossible to refuse the patients the possibility of relief by an operation, all four were completely cured. He was also successful with several cases of non-cancerous stenosis of the pylorus. He advocates closing the stomach completely, and then making an anastomosis with some loop of the intestine near by (gastro-duodenostomy), in cases where it is necessary to remove a very large amount of substance on account of the extent of the cancerous growth. Intervention is always possible when the upper part of the duodenum alone is affected and a small, even very small, portion of the stomach near the cardia can be retained. He has performed fourteen gastro-enterostomies, and uses the Murphy button. Doyen reports a total of ninety-four operations on the stomach, including fifty-five for non-cancerous lesions, ulcers, dilatation or severe dyspepsia with advanced cachexia, cases abandoned by the physicians. He attributes his surprising success in these latter cases to the fact that the dyspepsia is caused by some constriction of the pylorus, and disappears when normal communication is reëstablished between the stomach and the intestines. He has never used an anastomotic button, which he considers a step backward in surgery. He requires only twenty five minutes at the outside to complete the operation. Roux has twelve successes to report with one failure. He makes a Y-shaped incision (gastro-enterostomy), to avoid "elbows," which are liable to occur with a lateral operation. He prefers a button to a poor suture, but considers a well made suture far preferable to any button, as the patient can begin to take nourishment at once, a most important factor in rapid recovery.—*Bulletin Méd.*, October 25.

New **Process of Vaginal Hysterectomy.**—The broad ligaments when seized with the forceps offer an uneven surface, which sometimes allows parts of the ligaments to escape and necessitates annoying delay in the operation. To obviate this, Faure has devised a new process of vaginal hysterectomy which also permits a much firmer ligature than other methods, if desired. It is described in full and illustrated in the *Presse Médicale*. It is only applicable to those cases in which the uterus can be drawn down to the vulva after median section (Müller, Quenu), or after Doyen's anterior hemisection, which Faure much prefers. After the uterus is thus drawn down and out of the vulva, with its anterior wall split open to the top, the rear wall is then cut down vertically one-third to one half from the top, thus separating partially the organ into halves, which spread apart. One side of the upper part is then seized with another pair of forceps and cut transversely, parallel to the upper edge of the broad ligament and at right angles to the axis of the uterus, continuing the cut 2 to 4 centimeters up into the broad ligament, above its attachment to the uterus. This transverse section should extend beyond the insertion of the ovary and the operator has thus in his forceps the upper third of one half of the uterus with a third of the broad ligament as a pedicle. This pedicle being small, thin and movable in any direction, can be easily and firmly grasped with a pair of forceps. But it is just as easy and simple to make a permanent, firm ligature as to seize the pedicle with the forceps, and a piece of silk applied at once without the forceps (which may spread the tissues to be ligated) positively insures hemostasis. After the forceps or this ligature have been applied above the insertion of the ovary, the removal of this upper third of one-half of the uterus, with its ovary and the attachment of the broad ligament, becomes a very simple process, with no possibility of hemorrhage. The upper third of the opposite half is then separated by a similar transverse section extending up into the broad ligament in the same way, leaving a similar small pedicle which is also seized with the forceps or ligated in the same effective manner and removed. The upper third of the uterus on both sides is now gone and a similar procedure with the second third follows on each side, cutting with the scissors up into the broad ligament far enough to afford a convenient hold for the forceps or ligature, the posterior wall of the uterus being cut down on the median line as necessary. The lower third (the cervix) left on each side, is also treated in the same way and the entire uterus is thus removed in six pieces, leaving six projecting stumps of the broad ligament, each securely ligated or held with forceps. There is very little hemorrhage when the transverse incisions are made, as they are either just above or below the principal uterine and utero-ovarian branches.

The New Treatment for Sprained Ankles.—In the *International Journal of Surgery*, Dr. Lawrence Crook of Jackson, Tenn., gives an account of six cases of sprained ankle treated by what has been called "the Gibney method." It is now about three years since Dr. V. P. Gibney of the New York Hospital for Ruptured and Crippled advanced, in the *New York Medical Journal*, certain propositions as to this lesion that were in his estimation new, yet reasonable, practicable and worthy of general adoption. "The experience of numerous observers since then has verified his statements, and as one of those who have used his method I am before you today to advocate it and prove its efficacy. The treatment, according to Gibney, 'involves no loss of time, requires no crutches and is not attended with any impairment of functions.' The method is as follows: A number of strips of rubber adhesive plaster about nine to twelve inches in length and of appropriate width, are prepared. I then proceed thus, not following exactly the method of Gibney. Beginning at the outer border of the foot, near the little toe, the first strip partially encircles the joint and ends behind the foot. The second strip is begun on the inner side of the foot and is applied on the opposite side, nearly meeting the first strip behind. Other strips are applied in like manner, each one overlapping the last and crossing its fellow of the opposite side in front, so that the ankle is snugly and smoothly encased, care being taken not to completely encircle the joint with any

one strip. After having bound the foot firmly it is well to add one broad strip running around the foot from the internal side of the leg down the internal side of the foot across the plantar surface and up the outside of the leg, 'as much as possible to take the place of the middle fasciculus of the external lateral ligament, which is so often the one most injured.' It is a good plan to place a pad of absorbent cotton over the external malleolus and in the fossa below, to prevent undue pressure and chafing. Any one of the injured ligaments may receive a similar reinforcement from an extra strip. I then apply a roller smoothly over the entire surface, allowing it to remain until the plaster takes firm hold. The simplicity of the strapping treatment, the ease with which it is applied and the immediate and marvelous effect upon the patient can not fail to impress even the most skeptical. Though in direct opposition to the teaching of most of the authorities, it is none the less deserving of attention and application. To judge it by its effects and results, the only just basis from which to deduce a conclusion, we are forced to decide that it is a wonderful improvement over the old methods. The saving of time alone is of great importance in the case of men employed by corporations that pay their employes for time lost when injured; to accident insurance companies, to whom the saving of time means a saving of many hundreds of dollars in indemnities; and last and best of all, to the patient himself, who can soon resume his work, free from pain and without fear of unfortunate results in the future.

"*Case 1.*—A male, age 22, was brought in one evening on a litter, apparently suffering great pain and unable to walk. Dr. White, the superintendent, called me in and we diagnosed sprained ankle. Deciding to use the Gibney treatment, the foot was cleansed and the adhesive strips applied as explained previously, reinforced with a roller bandage. The patient was then told to take up his litter and walk, which, after some hesitation, he did, walking out of the hospital with only a slight limp.

"*Case 2.*—Some weeks ago I was called to attend an employe of the I. C. R. R. who had fallen from the top of a box car, severely spraining both ankles. The injured parts had been dressed for thirty-six hours in lead and laudanum lotion, but were, nevertheless, greatly swollen, discolored and painful. He had them elevated on a pillow when I arrived. I told him I would have him walk about the room in a few minutes, a statement which greatly amused his friends and himself. Shaving the parts and proceeding as usual, I ordered him to arise and walk, allowing him to use his cane. Slowly, cautiously, timidly and fearfully, at first, he placed his feet to the floor, exclaiming: 'Boys, that don't hurt, I *can* walk,' and he walked about the room several times. Three days later he was on the street telling his friends of the wonderful treatment.

"In conclusion, in the *Railway Surgeon* for Jan. 28, 1896, there is an article by Dr. A. B. Poore of Cedar Rapids, Iowa, which is highly commendatory of the Gibney treatment. He reports complete success in every case, and among other things says, after describing the treatment at length: 'Usually the patient at once makes two comments, that the pain is very much lessened as soon as the strapping is complete, and after he has tried it that he is surprised to know how well he can walk. The average time is so much shortened by this treatment, and the pain is so much less, that the ordinary sprained ankle is no longer a bugbear.' My experience coincides with that of Dr. Poore in every particular."

Paralysis of the Soft Palate.—Dr. Charles Beevor, in *Clinical Journal*, October 7, reports a case of this affection in a male patient, aged 54 years, occupation that of a rag dealer. "Eighteen months ago he had an attack of right hemiplegia, which came on quite suddenly, but he did not lose his senses. He was in bed four weeks with loss of power in the right arm, right leg and right side of the face, and his speech became affected and has remained so. I shall not now go into the cause of this, as I do not propose to deal with hemiplegia; but it is probable that his case is one of thrombosis, not hemorrhage. The second cardiac sound was accentuated, but no albumin in the urine. On examination the patient was found to have right hemiplegia and paralysis of the right side of his face was extreme. He can now whistle, close the eyes and show the teeth. A year ago he had some difficulty in putting the tongue into the right cheek, but he can do so fairly well now. I may here mention that in examining the tongue it is not sufficient to see whether it comes out straight; it should be ascertained whether the patient can move the tongue in all directions. The etiology of this form of paralysis is various. Taking the cortex first, the point where you get, by electric stimulation, movement of the soft palate on the opposite side only is at the foot of the ascending frontal convolution. Mr. Horsley and myself, working on the subject in the monkey, found that there were certain points at the foot of the ascending frontal convolution, stimulation of which gave elevation of the opposite half of the soft palate, *i. e.*, stimulation of the left cortex caused drawing up of the palate on the right side only. In each experiment a drawing of the cortex was made on paper ruled with lines which divided it up into squares of 2 mm. the side, and each of these squares was separately stimulated. The squares where the movements were obtained are marked in the diagram. The area for the soft palate is at the lower end of the ascending part of the frontal convolution and close to the points which, when stimulated, produced movements of the face and tongue. I believe it had not been shown before that the movement is unilateral. The question arises whether a lesion will produce this paralysis of one-half of the soft palate. It is probable that the soft palate fibers would go along with those of the tongue, the representation of which is close to that of the palate. The next question which arises is, where is this nucleus which sends fibers to the soft palate? It used to be thought that the soft palate was supplied by the facial nerves and it was utilized as a means of ascertaining whether the lesion was inside or outside the skull. Dr. Hughlings Jackson said, years ago, that he had never seen a case of paralysis of the soft palate in paralysis of the facial nerve and Mr. Horsley and myself did some experiments to test this. We removed one hemisphere and stimulated the peripheral ends of the cranial nerves and found we got no movement of the soft except from the accessory nerve to the vagus; no movement from the facial or pneumogastric or any other nerves. The next problem is the location of the lesion. First, taking the causes of paralysis of the soft palate from below upward, the simplest case is one of paralysis of the nerves, as after diphtheria. In this case there is the history of a sore throat or definite diphtheria, then gradual onset of paralysis, always bilateral. Reflex action and faradization are both lost and in many cases sensation is also lost. You will see why reflex action must be lost as well as faradization, namely, because the lesion is below the nucleus and the muscles are thus cut off from their trophic centers. If the motor or the sensory nerves be affected there is no reflex action, because the reflex arc is broken; and when the motor nerve is affected electric reaction of degeneration ensues. In a lesion of the nucleus of the accessory nerve to the vagus the onset is, as a rule, gradual, as in the man I showed you with amyotrophic lateral sclerosis. In a case like that the onset is gradual and is nearly always bilateral; that is, the nucleus on both sides is affected. There is another form met with in which the nucleus itself is affected and which begins with a sudden onset due to thrombosis and called acute bulbar paralysis; here the reflex action is lost and there is loss to faradism. To sum up, the prognosis in diphtheritic paralysis is favorable in progressive muscular atrophy, or in amyotrophic lateral sclerosis it is very unfavorable, as the disease will steadily progress and probably cause death in a year or two; while in acute bulbar paralysis and in acute lesions of the nucleus, or of the motor tract above this, or in the internal capsule or cortex the prognosis is better, as the patient may improve; and even if he does not the disease will not advance, except he have another attack to which he may succumb. Hence, excepting diphtheritic cases, all paralyses of the soft palate are very serious."

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It would greatly facilitate the prompt delivery of the JOURNAL to those members of the ASSOCIATION living in large cities, if they would kindly furnish this office with their street address in those cases where it is omitted from the wrapper of their JOURNAL, as we have been notified by the postmasters of the larger cities that second-class mail matter not having street address, would be placed in the general delivery to await call.

SATURDAY, DECEMBER 19, 1896.

THE DAILY MEDICAL INSPECTION OF SCHOOLS.

It is reported that the New York City Board of Health is about to follow the lead of Boston, in the matter of school inspection for the repression of infectious disease. It is proposed to employ a staff of physicians, 150 in number, for a period of ten months in the year. The corps of physicians is to be superintended by a chief inspector, whose salary will be $2,500; the members of this staff will receive $30 per month, making the total cost of the bureau $47,500. Dr. GEORGE B. FOWLER, the Medical Commissioner of the Department, has stated that a preliminary investigation, covering a period of over two months, has left the profound impression that, while there may not be at the present time any special prevalence of contagious diseases among children of the school-age in that city, a material improvement in the death rate can be effected by a daily inspection of the pupils at the various public and parochial schools, having in view the earlier detection of cases of diphtheria and other preventable diseases. One branch of the duty of the inspectors will be the following up of the cases of absentee scholars whose absence is believed to be due to sickness, and in this way affording the Department timely information whether the cases of sickness are of an infectious nature or otherwise. It has been found, with regard to measles for example, that in hundreds of instances this disease has existed in families, the parents of which have been entirely ignorant as to the cause of their children's sickness, so that the customary school-detention has been practically impossible at the time when such detention would be especially important for the reduction of exposures; and that in many such cases the children have been without medical attendance during the period of absence from school. In other instances the family physicians, having been misled by the mildness of the initial symptoms in the sick children, have failed to make report of the cases as being contagious in character. In the JOURNAL, for October 24, we gave a sketch of the medical inspection scheme that had been on trial for a year at Boston, from which it will appear that the medical men are held responsible for the kind of quarantine that is maintained by the families, after the inspector has designated the room that shall be set apart for the contagious patient. If in the opinion of the Inspector, the quarantine can not or will not be kept, it becomes his duty to provide for the removal of the patient to the hospital for infectious diseases.

INTESTINAL PERFORATION COMPLICATING TYPHOID FEVER.

Surgical intervention in cases of peritonitis of whatever nature has been attended with such good results that what was considered at first as a bold operation has come to be looked upon as an accepted procedure. Success has attended timely and expeditious operation for peritonitis following perforation of a gastric or intestinal ulcer, as well as similar treatment of tuberculous peritonitis and that form due to pneumococci, and also appendicular peritonitis. In the past it has been customary to describe two varieties of peritonitis complicating typhoid fever, one the result of perforation and the other occurring through propagation. The first is a serious complication, usually widespread in distribution and resulting from perforation of an ulcerated Peyer's patch or solitary follicle; the second is said to be less serious, more limited in extent and resulting through propagation of the infectious process from the intestinal wall to the peritoneum.

Peritonitis due to perforation of an intestinal ulcer of typhoid origin does not always set in abruptly with violent symptoms, but on the contrary the onset may be insidious and the symptoms of but moderate intensity. The condition of the patient is not conducive to vigorous reaction, while the perforation is usually small and the escape of intestinal contents small. In a communication upon this subject presented at a recent meeting of the Académie de Médecine, DIEULAFOY (*Presse Médicale*, Oct. 28, 1896, p. 569) pointed out that hiccough is a very characteristic sign of intestinal perforation during the course of typhoid fever, but even more so he considers a sudden decline in the temperature below the normal.[1] The

[1] In criticising the latter portion of this statement Lereboullet (Gaz. Hebdom. de Méd. et de Chir., Nov. 8, 1896, p. 1069) issues the caution that the algidity of collapse should not be mistaken for hypothermia and that a reliable temperature-registration can not be secured in the axilla

latter differs from that which rarely marks the defervescence of typhoid fever in that this is attended with amelioration in the general symptoms, while the temperature does not fall below the normal. The hypothermia of perforation differs from that of hemorrhage in the gradual rise in the temperature that takes place in the former and the more rapid rise in the latter.

In the large majority of cases peritonitis due to typhoid perforation is fatal. There are, however, undoubted cases in which the process has remained circumscribed, while adhesions formed and recovery followed. DIEULAFOY is unwilling to admit the occurrence ordinarily of peritonitis by propagation, without perforation. In cases of this kind he believes that the appendix is really the seat of the disease, with secondary involvement of the peritoneum. He contends that typhoid bacilli, as well as other pathogenic microörganisms, migrate through the walls of the intestine only when their virulence is intensified by confinement in a closed cavity, as the appendix is wont to become when inflamed.

There may, then, be two forms of typhoid appendicitis complicating typhoid fever, either of which may lead to peritonitis. In one of these the lymphatic elements of the appendix become the seat of typhoid lesions, with ulcerative perforation and consequent peritonitis. The symptoms of this condition do not differ from those that attend perforation in other parts of the bowel as a result of typhoid ulceration. In the other form of appendicitis complicating typhoid fever the condition is a true appendicitis of the usual variety, with the classic symptoms of this disorder and the possibility of all of its complications. To distinguish the two the former may be designated typhoid appendicitis, the latter paratyphoid appendicitis. Paratyphoid appendicitis is to be distinguished from peritonitis due to typhoid perforation especially by elevation of temperature, while as has been stated, the temperature falls below the normal when intestinal perforation takes place as a complication of typhoid fever.

The medical treatment of peritonitis secondary to typhoid perforation consists in keeping the bowel at perfect rest, with total abstinence from food and drink, the administration of extract of opium, one-third grain every hour, injections of morphin beneath the skin and the application gently and cautiously of ice to the abdomen. These measures will, however, usually fail and surgical intervention will become necessary. In cases of paratyphoid appendicitis the indications for operation and the successive steps to be pursued are pretty much the same as in cases of ordinary appendicitis and appendicular peritonitis. In cases of perforation and peritonitis the success of operation will depend upon the promptness with which the condition is recognized and the expedition with which the necessary manipulations are carried out. When the site of perforation can be found this should be appropriately closed and drainage provided for. Often more than one perforation exists or a second one may be subsequently added to that already existing, so that under most circumstances it will be conservative surgery to pack the wound in the abdomen and leave it partially open. All in all, it would seem as if the danger of operation were smaller than the risk of uncertainty from non-interference when the condition is recognized or even seems probable.

or mouth, but must be sought in the rectum. He attaches far more importance to the frequency and character of the pulse, maintaining that intestinal hemorrhage or perforation is attended with increased frequency and irregularity of cardiac action.

BOOK ENTERPRISE.

"Of making many books there is no end," but the selling of books requires more talent every year. Teachers of medicine, specialists, general practitioners and medical men of every grade of culture, from the bold quack to the most learned physician, catch the infection to write a book as the highest attainment possible. Then comes the struggle to sell it. The wary publisher is always ready to print and issue the volumes if the author will pay the bills. This is very common in most works, and the publisher is simply the broker for the sale, receiving a large commission, or what he can get. Frequently the largest circulation is the review copies for the medical press, a few presentation works to friends and libraries, and the work is dead. The author has paid for this short lived fame, and dies with the delusion that the publisher or some cruel journal is responsible for this failure. Publishers who have ventured to print works on the promise of large profits, and find the returns very slow must devise every possible means to create a demand for the book. As the books increase, both those issued on commission and those which they have invested in, the effort to sell becomes more and more difficult. Recently some of the large eastern publishers have started a new plan for disposing of books. Finding cities where active medical societies meet often, they arrange with the secretary to send him packages of books for review. These works are distributed among the members, following their individual taste as far as possible. Thus giving works on surgery to persons who have a taste in that line, and so on with diseases of women, children, and other affections. The member is requested to read the work and give the society a review of it at some distant meeting. Anyone wishing the work can have this copy or others at a good discount. The amateur reviewer is flattered by the honor of testing the value of a new book, and showing his critical ability to his associates. Hence, he reads with great care and often becomes interested in and purchases the book; this from mixed motives to keep it from his rival, and to show his desire to be up with the times. Not unfre-

quently an adverse criticism will rouse up a rival to examine and purchase the book. At every meeting this department of new books furnishes a most interesting topic of discussion which always ends in the sale of the book.

The wise publisher pays the express charges both ways, leaves the works in the secretary's care four or five weeks, only stipulating that cash less the discount be sent for all works retained. In this way last winter over fifty volumes were sold in one small town. In many respects this is an admirable way of selling works, and rousing the critical faculty of reading and comparison of books. Many of these reviewers would never read these books except for some special motive, or to appear learned before their associates. Whether they purchase the work or not, they derive satisfaction in having measured their intellectual abilities with the author. Others are impressed with the teaching of the author, and like a free sample of a new drug, enjoy and fully endorse it always after. It will be a curious study in the future to know how far physicians will buy books which they read before purchasing. The books must have some attractions, which grow from an intimate acquaintance, or this method will be fatal. Few works bear long study by the owner, unless it be encyclopedic books of the day, and even these are usually read in part only. There is certainly more science and profit to the profession in this method of selling medical books than by those of the glib unscrupulous agents who force the sale often against the judgment of the purchaser. The reviews of general practitioners are often clearer and more accurate of many books, than the learned professional critic. So far as our JOURNAL is concerned, its limitations of space have prevented us from doing more than giving notices of books, with occasionally brief commentary. But in these notices we have always tried to give our readers an unbiased and truthful summary of the contents, and a correct idea of the scope and probable value of the work noticed. If in some way authors could reach the rank and file of the profession, and secure their endorsement, books of merit would not require business-pushing and effort to find purchasers.

MIRROR SPEECH.

In the "Bulletin" of the *Progrès Médical* of November 28, M. BAUDOUIN editorially calls attention to a curious fact of observation bearing on the disorders of speech, that, as he says, was liable to be lost in the literature of surgical procedures. A little girl of 12 years was trephined, apparently *in extremis*, for a supposed cerebral abscess. Great improvement followed the operation, but there continued for five weeks a peculiar disorder of speech, in which the child made use of incomprehensible utterances, with an evidently intelligent purpose. For example, the following is given: "*Te-tan-ma; Yen-do sieur-mon, chant-me; le-quil-tran-ser-lais-me-vous-las-vous.*" This was uttered with evidences of great anger, and similar sounds were repeated with increasing rapidity. Close attention to these utterances revealed that the child was really using the French language in a way clearly resembling the back-slang of the criminal, she was syllablizing backward all her words. The above thus interpreted, became: "*Ma tante; Monsieur Doyen, méchant; voulez-vous me laisser tranquille.*" This was first discovered by making her write down what she wanted to say, and it was seen that she simply wrote the syllables backward without making the slightest error. Subsequently her normal power of speech returned to her with otherwise marked improvement.

There is an important suggestion in this observation that possibly the unintelligible utterances of individuals suffering from brain disease with aphasia, and which are not at all infrequently observed, may be cases of this kind. The patient evidently tries to say something which is not understood, and is annoyed and excited because of this fact. It is, moreover, one of the first cases, if, indeed, it is not actually the first, as M. BAUDOUIN supposes, where anything analogous to the well-known "mirror writing" that has been so fully studied by many authors, has been noticed as occurring in the speech of aphasic patients. M. BAUDOUIN proposes for it the name, "mirror speech," as indicating this relation and describing as nearly as can be done by a simple designation, the special feature of the phenomenon.

AN IMPORTED CUSTOM.

A custom which, although said to be common enough in Europe for many years, has only lately reached America, is that of hotel "privilege" as applied to doctors. It has always been the case in the larger hotels that the boot-black, the proprietor of the news stand, and the cigar man, paid the hotel for the privilege of conducting their business. The custom has now been extended to the hotel doctor.

The doctor attached to one of the newest and largest Chicago hotels lately left it, and it is said owed the hotel some $1,500. The proprietor was apparently not backward in taking steps to recover his loss, and as there were several applicants for the vacancy, he placed the privilege at $500 a year, for not less than five years; the $2,500 to be paid in advance. As the place was not put up at auction, the first comer, a pleasant young gentleman, procured the funds and became installed in the hostelry, and now watches with complacency the mild envy of his less fortunate rival. It is to be hoped that the leveling tendency of the times will not progress so far that the social standing of the hotel doctor may be placed on the same footing with that of his privileged associates, the boot-black and the cigar vendor.

CORRESPONDENCE.

Foreign Bodies in the Auditory Canal.

ALBION, MICH., Dec. 14, 1896.

To the Editor:—Mary B., aged 5 years, of German parentage, was brought to my office by her father recently. He gave a history that the child had complained for several months of ear trouble, and especially of the left ear, and at times suffered with ear ache. An examination with speculum and reflected artificial light, revealed what was first supposed to be hardened cerumen. Copious syringing and douching failed to dislodge it and a closer examination and contact of the substance with the ear spoon disclosed a hard, smooth surface, and the conclusion was reached that a foreign body had become impacted. The surfaces were so smooth the forceps could not maintain their purchase, the parts so tender that a tenaculum was with difficulty passed behind and the body removed. It turned out to be a round, dark, smooth marble of the full diameter of the canal. Next to the tympanum was a small wad of newspaper. The right ear was next examined. This was found to be filled also; the forceps removed two paper wads, a small piece of chewing gum and a small sized pebble. The canals were considerably ulcerated and the tympana inflamed, but no evidence of perforation. It was a new experience to find the auditory canal a toy and plaything repository.

HENRY DENNY THOMASON, M.D.

Hydrophobia.

CHICAGO, Nov. 24, 1896.

To the Editor:—What can be done by the profession, the public, or the authorities to prevent hydrophobia?

Two cases of dog bite, one followed by rabies with fatal termination, that have come to my notice recently, have urged me to bring this subject before the medical profession. If these lines open up discussion and stimulate the readers to some activity in the matter, they will have fulfilled their mission.

For the history of the case of rabies I am indebted to Dr. J. Johnston Bell. On October 6 of this year the child of F. R., 19 months old, was severely bitten by a strange dog, while playing around its mother in a lot adjoining their home on N. Oakley avenue. Dr. Bell attended to the surgical treatment of the child. As the identity of the canine was not established and no mad dog was located by the police after diligent search, the Pasteur treatment was not suggested. The little one made a good recovery, although one cheek was torn through so as to expose the teeth. On Monday, November 16, six weeks after the bite, the child developed symptoms of hydrophobia and died early Wednesday morning, November 18. Dr. Bell was kind enough to call in Dr. Bruning and myself to see the case on Tuesday. After getting the history of this case, it occurred to me that I had attended a case of dog bite in the neighborhood at about the same time that this child was bitten. Reference to my books and personal inquiry developed the fact that on October 6 I had attended a child, aged 7 years, at N. Robey street and Clybourne avenue, within a few blocks from Dr. Bell's case. The description of the dog given by the parents of both children tallied. This and the coincidence of time urged us to insist upon the Pasteur treatment for my patient, to ward off if possible the dread disease. The parents, although very poor, consented to put their child under treatment with Dr. Lagorio at the Chicago Pasteur Institute.

Cases of this kind are not rare instances in large cities. The question then is, what can we do to prevent fatalities? I see no way, except to anticipate the worst and subject every case of dog bite to the Pasteur treatment, unless we have the dog and know him to be free from rabies. So far, so good, but the treatment is not in reach of every one, because of the limited number of institutes and the expense of treatment. Dr. Lagorio has been conducting the Chicago Institute at his own expense for the past six years and has treated 532 patients up to October 1. Many of these patients were unable to pay, quite a number dishonest, so that his services were but poorly paid. He has, on several occasions, applied to the municipal and State authorities to assist him in his grand work, but without success. In view of the fact that hydrophobia is fatal in practically all cases, after symptoms develop, and since the Pasteur treatment is an absolute and safe preventive in all cases treated at once, it is the duty of the community to place this boon within the reach of all. If the State and municipal authorities can not be roused to do their duty, I would suggest the formation of a Pasteur society, a national society, with the aim of organizing and maintaining institutes in every State for the treatment of every case of dog bite sent by physicians. Enough fees could be collected to make the institutes self-sustaining or nearly so. While looking to the prevention of rabies, the dog, cat and other dangerous animals should not be lost sight of.

LOUIS F. MAY, M.D.

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An Explanation.

ST. PAUL, MINN., Dec. 14, 1896.

To the Editor:—Your columns are hardly the place for a literary controversy, but I can not refrain from sending a line in answer to the courteous (?) letter of Dr. B. H. Putnam in your last issue. If he will read my first letter he will see that I made no attempt to translate the Latin of Cordus' Epigram, but simply called the attention of "R. M. W.," who sought for information, to the fact that the lines he quoted were originally translated (by whom I do not know) from the Latin, as stated by me. My authority for this statement may be found in Baas's History of Medicine, page 369. The translation, although more liberal is also I think more poetical than that given by Dr. Putnam.

Yours truly, BURNSIDE FOSTER, M.D.

PUBLIC HEALTH.

Plea of Ignorance as to Infectious Diseases.—Dr. Woodforde, Medical Officer of Health for Berkshire, England, in *Public Health*, October, makes the following observations on this difficult subject: "During the period that the Act (of notification) has been in operation in the greater part of the district it has worked satisfactorily and with uniform smoothness so far as notification by the medical attendant is concerned, and the fears that were entertained by some of its operation involving such publicity as would often be likely to be injurious to the parties concerned has not been justified by the result, while the decrease in the mortality of some of the notifiable diseases has been very marked. The Act does not, however, as yet confer all the benefit on the community that it might do; first, because its adoption in any given district is optional, and secondly, because it is so drawn that the 'dual' notification for which it provides is practically a dead letter in the district, and I can not entertain a doubt but that a large proportion of mild attacks, where a doctor has been called in, are never notified at all, nor are the proper precautions taken to stop the spread of infection. This arises from the fact that, while the Act requires the head of the family or other responsible person to notify *as soon as he becomes aware* of the nature of the illness, it does not require him to take any steps to obtain such information, and the plea of ignorance is consequently set up with much success, when the case has not had medical attendance, as a bar to proceedings before the Justices for failure to notify. This difficulty would be removed if the Act was amended by

the addition of a clause enacting that the plea of ignorance of the nature of the complaint should not be held to be a valid one unless it was shown to the satisfaction of the Justices that the person charged with neglect to notify had taken proper steps to inform himself, either by obtaining medical advice or in some other sufficient manner."

Antiquated Methods in Vaccination.—There has been no essential advance for nearly thirty years, in England, in the legislation regarding official vaccination. The Local Government Board do not officially know that bovine lymph exists, and in fact have at times refused the city or county health authorities permission to supply it for the use of their public vaccinators. No objection has been raised to the use of calf lymph, provided the vaccination is done directly from calf to arm, but any prepared or preserved lymph is open to objection by the Board. The freshness of the vaccine is, according to the *Lancet*. November 14, the point of first consideration. The tenor of all English laws from 1867 downward is directed to secure to the utmost that vaccination should be performed with fresh lymph from arm-to-arm; and hence the system of awards which the Act of 1867 provides for, carries with it compliance with that law and the regulations made under it. The Local Government Board are therefore tied to this law just as the public vaccinator is, and they can not sanction departures from that law until it has been repealed, however much they desire so to do. For some time past they have raised no objection to a public vaccinator using calf lymph; but since this departure from the regulations involves loss of award they feel bound, when the matter is put before them by letter, to explain that they have no power to authorize any change pending fresh legislation, and they issue a warning as to the chances of the loss of the award, which they can only grant under the existing law. If guardians could have instituted calf stations, then vaccination with fresh lymph from calf to arm could have been carried out in the provinces just as it is at the Government calf stations in London. From a letter which the Local Government Board have recently sent to the Cardiff guardians it appears that they have consulted the law officers of the crown as to whether this could be done, with the result that it had been decided that "the guardians of a union or parish can not themselves supply calf lymph to their vaccinators, unless, indeed, under some special emergencies involving an actual or anticipated outbreak of smallpox, such as are contemplated in Section 28 of the Vaccination Act of 1867. The Local Government Board are even more averse to the supply by guardians of preserved calf lymph, for they hold that it is the public vaccinator, as a medical practitioner, who must be held responsible for the character and source of any lymph which he uses, and that no guardians, whether individually or collectively, can by supplying him with lymph relieve him from this responsibility. Where, notwithstanding these considerations, boards of guardians still insist that the public vaccinator shall use calf lymph and where that officer is himself ready to do so, although under the present regulations he would in consequence lose his award, there have been cases in which the guardians have raised the fee for vaccination, so as to cover the cost incurred by the public vaccinator in procuring a trustworthy supply of calf lymph; and we believe we are correct in saying that the Local Government Board have consented to such increase of fee. Where this is done, the public vaccinator should to the utmost endeavor to secure that the vaccination shall be successful in not less than four places, and that his results shall not fall short of those which he obtains with fresh lymph from arm-to-arm. The objections which have been raised to the effect that an equally efficient protection against smallpox is obtained by vaccination in, say, two places, must be regarded as having been set at rest by the conclusion at which the Royal Commission on Vaccination have arrived, when they say: 'There is a very marked contrast between those with four or even three marks as compared with those with either one or two.'"

Description of the Disinfecting Station in Paris.—The following is a copy of a report in the *Annales de Microscopie*, Nos. 7 and 8, 1896, regarding the municipal service of disinfection for the city of Paris:

In 1889 the city of Paris placed at the disposal of the people the municipal disinfecting stations attached to the stations of the municipal ambulance service. There exists in Paris, four disinfecting stations: 6 Rue Recollets, 71 Rue Chateau des Rentiers, 21 Rue Chaligny, and one in the Rue de Stendhal. These establishments contain complete outfits for disinfection, both at the stations and at the houses. The service is in charge of special agents who occupy position under the Director of Municipal Affairs, and under the supervision of the Inspector General of Public Health. The study of the scientific problems of disinfection and the best mode of application of different methods is under the care of special agents, and is referred to a committee composed of some of the best men in France. (Drs. Proust, Charrin, Leon Colin, Gormil, Landowski, Ledé, Martin, Miquel and Vallin. The principal station is the one in the Rue des Recollets, which is also the most centrally located. This station has recently been enlarged by the addition of one more oven, making three in this station alone. All of the four stations are operated every day, and an immense quantity of goods are thus disinfected. The different stations are all built alike, two parts, entirely distinct from each other, are separated from each other by a partition wall, and in the rooms where the goods are handled by a metal partition up to level with the doors of the ovens. The left of the building is the infected side, the right the clean or disinfected side, and between the two and on the front of the building are the rooms of the General Superintendent. There exists no communication between the infected and the disinfected sides, except a passage which leads through wash and shower rooms and the doors of which are so arranged that the opening of any one door shuts all the others. The construction of this station was begun in September, 1890, and it was opened for work in July, 1891. It occupies an area of 960 square meters, and the building occupies an area of 600 meters. The cost of its construction was about 125,000 francs. The system of receiving the infected goods, of preparing them for the disinfecting chamber, the process of steam disinfection, the discharge of the disinfected goods, the method of separating goods soiled with pus and blood, those containing grease spots and those infected with organisms highly resistant to heat, are all most perfect. The disinfecting station in the Rue des Rentiers has annexed to it a night refuse for men, and contains two ovens. That in the Rue de Chaligny, connected with the city ambulance service, has one oven, and the station in the Rue de Stendhal, connected with the refuge for women, one large oven, four meters long and one and three quarters meters in diameter. This makes, in all the stations, seven ovens having steam under pressure. The methods of disinfection employed in the municipal service are: 1, the ovens having steam under pressure; 2, atomizers for the delivery of antiseptic fluids; 3, tubs of wood for the preparation of antiseptic solutions; 4, the portable outfit for house disinfection.

The personnel of the service consists of one controller, four chiefs of stations, four engineers and seventy-six disinfectors, ten of the first class, ten of the second class and fifty-six of the third class. Thus eighty-five persons are permanently employed, making the total from 100 to 110 persons in all. The men employed in the service have two uniforms; one, intended for a fatigue uniform, is composed of a vest, trousers and jacket of cloth, with silver buttons and an overcoat with a winter cape. The other, intended for a working uniform, consists of a linen cloth pantaloons and coat, having a drawing string both at the top of the pantaloons and the bottom of the coat, and a cap with a neck cover and visor. They also have a special form of footwear. When they arrive at the station in the morning to go to work, they leave all their clothing in a special ward-robe, and then put on their working uniforms. They must have their nails cut short and their hair and beards also trimmed short. Before they dine they must go into the dining hall of the station and carefully wash their hands and faces with a solution of corrosive sublimate. Every evening, before they resume their proper clothing for returning to their homes, they take a shower bath and wash themselves with antiseptic solutions.

Goods for disinfection are brought to the stations either by private individuals or by the regular collectors of the service on the demand of the administration. If the goods are brought by private individuals, the station is obliged to accept anything that is brought, mattresses, clothing, rugs, furniture, hangings, carpets, rubber goods, stuffed goods and utensils of all kinds. If the goods are brought by the regular collectors of the service, a selection is made; articles of furniture, glassware, trunks and glued wood are left in the house, while bedding, woolen goods, hangings, rugs, carpets, clothing, etc., are taken to the station. A book is kept in which an account is kept in duplicate of the name of the owner, the address, the items of goods, the condition in which the goods were received, the day of deposit and delivery, etc. The wagons which have served to transport infected goods are not allowed to leave the station

until they have been cleaned and disinfected by means of the atomizers or by the aid of washing with the solutions commonly employed in the station. In collecting infected goods for transportation to the disinfecting station, the following rules are rigidly carried out: Upon leaving the station, each wagon is accompanied by a driver and two disinfectors. The wagons are closed with a glossy, impervious covering, and contain a sufficient number of canvas covers and sacks for carrying all the objects of bedding, clothing, carpets, etc., one or more atomizers, bottles to contain disinfectants to charge the atomizers holding 12 liters of a 1 to 1000 sublimate solution, a box of packages of sulphate of copper, each package containing 750 grams, one can of cresyl, rags, brooms, sponges, etc., and bags of sail cloth containing the working clothes of the men. For the transportation of very fragile objects, large wicker baskets are provided. The wagon goes direct and without delay to the house indicated by the chief of the station. Upon arriving at the house, they put on their working clothes and then proceed to the infected apartment. They then spray with an atomizer the place on the floor, and lay down the sail cloth covers, sacks and baskets. In these are placed all the objects to be transported to the station, after which they are hermetically sealed. After getting these articles out of the room, they load the atomizers and proceed to disinfect the walls, ceilings and wood-work, all articles of furniture left in place, picture frames, tables, glassware, etc., are all subjected to the action of the atomizer or are rubbed with rags wet with the solution.

The vases and utensils with which the sick have been served, also the water closets, commodes and toilet tables are washed without stint with a solution of sulphate of copper, 50 per cent. The disinfection with the sulphate of copper is practiced in all cases of intestinal diseases and for diphtheria and croup, the solution being jetted into the closets, sinks and sewer pipes. For very large surfaces, such as court-yards, school room floors, stables, etc., a 5 per cent. solution of cresyl is used. When the disinfectors are through with the premises, they place themselves before the atomizers and are thoroughly sprayed off. They then wash their hands and faces with the sublimate solution, place their working clothes in a sack and return to the station. They first give a receipt to the owner for all goods which they remove. Upon arriving at the station they unload the wagon in the hall on the infected side of the building destined to receive infected goods. The unloading finished, the wagon is disinfected both inside and outside with a solution of sublimate. The sacks are opened by a second set of men attached to the station and the articles sorted out. Those soiled with pus, blood, fecal matter, etc., being washed and rinsed in a tank of disinfecting solution before being placed in the steam oven. The arrangement of the articles to be disinfected on the car which carries them into the steam oven is a matter of importance; all metallic parts are covered with sail cloth and each object of bedding is extended on the screen and wrapped in sail cloth. These objects are not folded closely, but laid out with care. Those made of wool or feathers and which are liable to swell are placed on top. When the car is loaded it is rolled into the oven and the door closed. The routine of handling the oven is as follows: Introduction of steam at a pressure of seven-tenths of an atmosphere for five minutes, a delay of one minute, and this is repeated three times. The oven is then opened on the disinfected side, the goods taken off the carriage and immediately shaken in the air to dry them and they are then laid on the drying screens, care being taken not to pile them up, and then a forced draught of hot air is sent over them and they are dry in fifteen or twenty minutes. The degree of pressure is indicated by a manometer and the steam is cut off automatically at the end of five minutes. The steam disinfection having been successfully carried out and the goods removed without damage, they are returned in wagons which are used only for this purpose and handled by men who never come into contact with infected goods. Upon the delivery of the infected goods the receipt is taken up by the driver of the delivery van. Goods of vegetable texture or bad colors which are liable to run or fade are generally treated by spraying, or with as little steaming as possible.

Disinfection of the sick room during the course of the disease is often done, but the agent does not enter the sick room unless requested to do so. They disinfect the clothing of the sick person, the commodes, closets and utensils. They carry away for steam disinfection the bedding and soiled articles and leave a bag for the reception of those articles soiled during the course of the disease, and exchange this bag for another as often as occasion requires. In 1895 there were 8,215 of these disinfections performed, and in 1896, up to date, there were 9,875.

The appropriations accorded to this service for the year 1895 was 362,012 francs. Of this, 353,000 francs were for the general service and 9,000 francs for the disinfection of schools. The first of these items is disbursed in the following manner:

	Amount in francs.
1 Controller, 2,400 francs	2,400
4 Chiefs of stations, 2,368 francs	9,472
4 Engineers, 2,260 francs	9,040
10 Disinfectors, first class, 2,153 francs	21,530
10 Disinfectors, second class, 2,046 francs.	20,460
56 Disinfectors, third class, 1,939 francs.	108,595
Substitutes for those who been taken sick.	2,000
Extra work and express.	500
Total	174,012
Horses, wagons and salaries of drivers.	95,000
Chemicals and disinfectants	20,000
Fuel and light.	12,000
Wear and tear on wagons.	3,000
Wear and tear on atomizers	10,000
Wear and tear of material	5,800
Blouses and replacing the same.	7,700
Contributions, taxes and sundry expenses	1,000
Printing and postage	4,500
Car fare	3,000
Clothing of the disinfectors.	8,400
Breakfast for the employes	8,600
Grand total	353,012

The Regulations of the Indiana State Board of Health.—The Indiana State Board of Health has issued the following Health Circular (No. 5): Special rules governing physicians and health officers when visiting persons sick of contagious and infectious diseases, and directing the proper conduct of quarantine. Passed Oct. 6, 1896.

Explanation.—It will be admitted that not a few practitioners are careless, and that there are some who do not understand or do not appreciate the care they should exercise in their own person when visiting patients sick with contagious and infectious diseases.

Quarantine, too, seems not to be thoroughly understood; for instances are not rare when the posting of a flag or a red card constituted all that was done, the flag being relied upon as a fetish. In such instances the physician takes no precaution against infecting himself, neghbors call and return to their homes at will, and the members of the stricken household are not restrained. Under such circumstances, contagious diseases will surely be spread in all directions. The laity frequently ask: "How do doctors keep from spreading disease?" They do spread disease in some instances, and to prevent the carrying of contagion by physicians and others is the object of these rules. Example will materially aid in instructing the people, and so these rules carefully set forth the conditions under which practitioners shall visit patients when they know them to be sick with diphtheria, scarlet fever and other infectious diseases. The conditions imposed are not difficult to fulfill and are not burdensome, and even if they were, no objection could be reasonably advanced against them if they were really necessary. An instance may be given which will fully illustrate the need of these rules.

In a village smitten with diphtheria a health officer visited, with a local physician, one of the cases. A card was upon the door and it was discovered that that constituted the quarantine. Two women and a young girl were within attending the sick child. One of the women was a neighbor who had kindly offered her aid, and she held the child in her arms, its head upon her shoulder.

From here this good woman was soon to return to her home to prepare the evening meal for her family. For depressing the tongue the same spoon had been used without washing or sterilizing since the beginning of the disease. The mother of the child grasped the spoon by the infected handle and offered it to the visitor. A soiled handkerchief lay upon the bed. This was handed by one of the ladies to the other who proceeded to wipe the mouth and nose of the child and then toss it onto the bed. With hands and clothing reeking with poison these good women infected everything they touched. Flies were abundant and busily at work aiding in the transmission of the disease. The attending physician preferred to have the child upon his knees when he took its temperature and pulse. The drops of saliva which passed onto his coat sleeve were wiped off with his handkerchief and he went forth to pay another visit. The health officer perceived a smile upon the face of his companion when before entering the sick room he removed coat,

cuffs and hat, produced a clean, glossy linen duster and skull cap from a glazed hand bag, and donning the garments announced himself as ready to see the patient. Another smile was provoked when upon leaving the sick room a bowl of water was called for, the hands and face washed with the aid of a cake of carbolic soap taken from the bag, and a disinfectant freely used.

The above facts impelled the passing of the following rules, and it is hoped they will be obeyed to the letter that humanity may be served and the medical profession honored.

The use of diphtheria antitoxin is recommended in all cases of diphtheria, and it is especially recommended that all persons who have been exposed to diphtheria be promptly immunized with it.

The justice and propriety of Rule 6 is plain when we remember it has been proved beyond any question that many simple red throats are really caused by the true diphtheria bacillus. A recent writer tells of a trained nurse who observed that wherever she went to nurse, diphtheria broke out. She had taken every precaution against carrying the disease, having had several Turkish baths, used antiseptics and made an entire change in her clothes, yet the disease followed her. Investigation showed her mouth to be alive with diphtheria bacilli. She was quarantined and given thorough antiseptic treatment. After the bacilli disappeared diphtheria did not again show itself in her track.

RULE 1. When visiting patients known to be sick with smallpox, scarlet fever, diphtheria or other contagious or infectious disease, physicians shall clothe themselves in a specially provided clean linen duster, oil-cloth or rubber coat and a tight-fitting cap made of silk, linen, oil-cloth or rubber. The cap shall well cover the hair. Before leaving the house, physicians shall cleanse hands and face with antiseptic soap and water, and use a disinfectant upon hands and face. The coat, cap, antiseptic soap, bottle of disinfectant, etc., shall be carried in a special glazed leather valise, together with a pad of cotton, which is to be kept wet with formaldehyde.[1]

RULE 2. Physicians shall give full and explicit instructions to parents, nurses and attendants concerning every precaution to be taken against the spread of infectious disease. When possible, patients shall be placed in a room which, for the time, shall not be entered by others than those who nurse, and only the physician and nurses shall be admitted. Every article of tableware or of apparel used by the patient shall be sterilized or destroyed by fire as soon as possible. Pieces of old soft cloth shall be used for wiping the mouth and nose of the sick. They shall be used but once and then immediately destroyed by burning, or sterilized by boiling for one-half hour or more in water.

RULE 3. Physicians shall promptly report to the proper health officer all cases of contagious or infectious diseases, to which they are professionally called.

RULE 4. Health officers shall, upon receipt of any reliable information of a contagious or infectious disease immediately flag the house and establish *rigid* quarantine, and shall distribute printed rules concerning the sanitary management of the household during the continuance of the quarantine.

RULE 5. When there is doubt whether or not the disease is diphtheria, physicians and health officers having the case in charge shall send to the State Board of Health or to other competent authority for serum tubes, that cultures may be made and the case immediately decided. The work will be done without cost by the State Board of Health.

RULE 6. When diphtheria prevails in a community it will be necessary to consider every case of sore throat diphtheria until the contrary is proved, and rigid *quarantine shall be maintained in mild as in severe cases.*

RULE 7. In all cases of death from diphtheria, membranous croup, scarlet fever and other contagious or infectious diseases the funeral shall be strictly private, and the corpse shall be buried within twelve hours after death. No public or church funeral shall be held, or any person permitted to enter the house containing the remains except the undertaker and his assistants, unless by permission of the county or local board of health or their officers. Health boards and officers shall enforce this rule.

RULE 8. The room in which there has been a case of contagious disease dangerous to the public health must be immediately disinfected following the recovery of the sick or the removal of the remains, as follows, to-wit: All surfaces should be thoroughly washed with a solution of corrosive sublimate of the strength of 1 part in 1,000 parts of water. The walls and ceiling, if plastered, should be brushed over with this solution, after which they should be whitewashed with a lime wash. Especial care must be taken to wash away all dust from window ledges and other places where it may have settled, and to thoroughly cleanse crevices and out-of-the-way places. After this application of the disinfecting solution and an interval of twenty-four hours or longer for free ventilation, the floors and woodwork should be well scrubbed with soap and hot water, and this should be followed by a second more prolonged exposure to fresh air, admitted through open doors and windows. School books or books from a circulating library shall not be taken into or removed from any house during the prevalence of any contagious disease dangerous to the public health, and if such books have been in such houses during the prevalence of said diseases, they must be destroyed by the owner or library authorities, or be properly disinfected before being returned to schools or put in circulation. Health boards and officers shall enforce this rule.

RULE 9. Any person or persons failing or refusing to comply with either or any of the foregoing rules, shall be subject to the penalties provided in Section 9 of an act establishing a State Board of Health, passed Feb. 19, 1891.

D. C. RAMSEY, M.D., President. J. N. HURTY, M.D., Secretary.

[1] The disinfectant recommended is a 1 to 5,000 solution of corrosive sublimate, a 5 per cent. solution of carbolic acid or 1 per cent solution of lysol. A cake of sublimated or carbolic soap may be conveniently carried in a traveler's soap box. The cotton pad is kept in the case or bag to absorb the formaldehyde. This chemical is our greatest antiseptic and its vapor will destroy all germs.

It will be well to add to the above outfit a roll of paper napkins and a bundle of small flat pine sticks to be used as tongue depressors. The paper napkins are suggested because towels can not sometimes be found at the houses of the poor, and if they were found might be infected. Having one's own napkin gives perfect independence. The wooden tongue depressors may be whittled out of pine, or better, obtain from seed dealers the flat pine markers for flower beds which gardeners use. They cost seventy cents per thousand.

The outfit here described may be obtained complete, or in parts, from the When Clothing Store, Indianapolis.

BOOK NOTICES.

Transactions of the Colorado State Medical Society, twenty-sixth annual convention. By-laws and list of members. Denver, June, 1896. Cl., 8vo, pp. 448. Published by the Society.

This excellent volume contains forty-seven papers read before this Society. Many of these have made their appearance in the various medical journals.

The Colorado Medical Society has a membership of 300, and is taking an active interest in the organization of a *united* medical profession.

A Text-book of Physiology. By M. FOSTER, M.A., M.D., LL.D., F.R.S. Sixth American edition. Thoroughly revised, with notes, additions and two hundred and fifty-seven illustrations. Cl., 8vo, pp. 930. Philadelphia: Lea Brothers & Co. 1896.

The editor of this edition says that in its preparation "every page has been subjected to careful scrutiny and considerable liberty taken with the text. Useless verbiage has been omitted, obscure sentences have been revised or entirely rewritten, a large number of typographic errors have been corrected, histologic details (except of the nervous system) have been materially abridged, etc."

This promise of a thorough revision has been faithfully carried out, as an inspection of the text shows, and there is no doubt Foster will retain the preëminence accorded him by the profession in the past. As a scientific text-book it is one of the best.

Reference Book of Practical Therapeutics. By various authors. Edited by FRANK P. FOSTER, M.D., editor of the *New York Medical Journal*, Foster's Encyclopedic Medical Dictionary. In two volumes. Vol. I (A—Myrtol). Cl., 8vo, pp. 652. New York: D. Appleton & Company. 1896.

This book is as its name implies a *reference book* of practical therapeutics. It might have truthfully been called a dictionary of therapeutics, for the topics are arranged alphabetically, and are treated with the conciseness and exactness of an encyclopedia. "The leading idea," writes Dr. Foster, "in the preparation of this work has been to make it preëminently serviceable to the practicing physician. It is not intended to take the place of treatises on materia medica or pharmacy."

The work is not confined to a description of the method of

preparation and use of official articles and remedies recognized by the pharmacopeia, but as well includes various proprietary remedies in use by the profession. There can be no two opinions of the usefulness and great merit of the work, but it is greatly to be regretted that the editor has adhered to the old sytem of dosage throughout. It is possible, however, that a posologic table may be contemplated for the second volume, in which event the omission would call for less comment. But in this period, when our own pharmacopeia long ago adopted the decimal system, and twenty years after its formal adoption by the AMERICAN MEDICAL ASSOCIATION, and when the Committee of Revision of the British Pharmacopeia are themselves about to adopt it, when every modern chemistry and nearly every modern work on physiology has adopted it, when the American Association for the Advancement of Science has adopted it, and every English speaking society of chemists has adopted it, it looks like a backward step to adhere to the obsolete English system, and we trust that the forthcoming volume may join the decimal procession.

The general plan adopted here is bound to meet with favor, and the book may well be placed on the most convenient shelf, for we predict that few books will be consulted more frequently by the busy practitioner; and the editor has added to his literary laurels by the conception and prosecution of a work in every way so useful.

There are thirty-three contributors to this volume, and their work is marvelously well done.

The publishers have given it handsome type and good paper, and in that respect there can be no criticism.

A Text-Book of Bacteriology, including the etiology and prevention of infective diseases and a short account of yeasts and moulds, hematozoa and psorosperms. By EDGAR CROOKSHANK, M. B. Professor of comparative pathology and bacteriology, and fellow of King's College, London. Fourth edition. Reconstructed, revised and greatly enlarged. Philadelphia: W. B. Saunders, Chicago agent W. T. Keener. 1896. 8vo, cloth, pp. 712. Price $6.50 net.

The present edition of Crookshank has so many changes in the text that it is essentially a new work. Twenty-six chapters have been added. The chapters are divided as follows: 1, historical introduction; 2, morphology and physiology of bacteria; 3, effect of antiseptics and disinfectants on bacteria; 4, chemical products of bacteria; 5, immunity; 6, anti-toxins and serum therapy; 7, the bacterial microscope; 8, microscopical examination of bacteria; 9, nutrient media and cultivation; 10, experiments upon living animals; 11, examination of air, soil and water; 12, photography of bacteria; 13, suppuration, pyemia, septicemia, erysipelas; 14, anthrax; 15, quarter evil, malignant edema, rag-picker's septicemia; 16, septicemia of buffaloes, deer, rabbits, pleuro-pneumonia, swine-fever, fowl cholera, grouse disease; 17, pneumonia, infectious pneumonia, influenza; 18, plague, relapsing fever, typhus fever, yellow fever; 19, scarlet fever, measles; 20, smallpox, cattle plague; 21, sheep-pox, foot-and-mouth disease; 22, horse-pox; cow-pox; 23, diphtheria; 24, typhoid fever; 25, swine fever; 26, swine measles, distemper in dogs, epidemic disease of ferrets, epidemic disease of mice; 27, Asiatic cholera, cholera nostras, choleraic diarrhea from meat poisoning, dysentery, choleraic diarrhea in fowls; 28, tuberculosis; 29, leprosy, syphilis, rhinoscleroma, trachoma; 30, actinomycosis, madura disease; 31, glanders; 32, tetanus, rabies, louping-ill; 33, foot rot; 34, foul brood, infectious disease of bees in Italy, pébrine, flacherie, infectious disease of caterpillars; 35, classification of species. Appendices: 1, yeasts and moulds; 2, hematozoa in man, birds and turtles; hematozoa in equines, camels, fish; hematozoa in frogs; 3, psorosperms or coccidia, ameba coli; 4 apparatus, material and reagents employed in a bacteriologic laboratory; 5, bibliography, supplementary appendix, extracts from the final report of the royal vaccination commission.

The work has always been a favorite in England, and in this country it has only had a limited sale, but it is one of the best works on the subject and should be welcomed to every laboratory. The complaint urged against the former edition that the plates were so highly colored as to be unnatural is an objection that has now been removed. The mechanical execution is all that could be desired.

The Practice of Medicine, a text-book for practitioners and students with special reference to diagnosis and treatment. By JAMES TYSON, M.D., Professor of clinical medicine in the University of Pennsylvania, etc. Illustrated. Philadelphia: P. Blakiston, Son & Co. 1896. 8vo, cloth, pp. 1184. Price, $5.50.

This work not only represents the work of a practitioner of great experience, but of a careful culling of the facts set forth in contemporary literature by one who well understands the art of separating the true from the false. The chapter on typhoid fever is excellent but it contains no reference to the blood diagnosis of typhoid, nor to the antiseptic method of treatment.

In malarial fever the method of blood diagnosis is fully described; indeed, this is one of the most satisfactory chapters in the book.

In cholera the value of M. Haffkine's protective inoculations are conceded. Cantani's method of enteroclysis is approved and DaLand's experiments thereon at Swinburn Island are quoted at length.

In diphtheria the author says there are three principal indications, "*first*, to prevent constitutional infection; *second*, to support the system, and *third* to combat the toxin." These indications according to the author are met by the local use of germicides and disinfectants; by 2, resolving supporting treatment; and by 3, serum therapy. The constitutional treatment is mainly by bichlorid of mercury (.002 to .005 gm). There is an interesting chapter on "the intoxications" which here has reference to alcoholism, morphinism, cocainism, chloralism, lead poisoning, arsenic poisoning, ptomain poisoning and grain poisoning.

Section 15 is devoted to a summary of the symptoms following overdoses of various poisons, which are given in detail: a table giving the minimum dose which has caused death and the maximum dose followed by recovery accompanies this section. The appendix contains useful tables for conversion of Fahrenheit into centigrade scale, for reducing the metric system into English et cet.

We are pleased to note that the metric system has been used throughout the work, which is certainly in every way admirable.

ASSOCIATION NEWS.

List of Presidents of the American Medical Association.

To answer inquiries and for the information of the members we have compiled a list of the Presidents of the ASSOCIATION from the beginning:

Dr. Jonathan Knight, (President of the convention).	
Dr. Nathaniel Chapman	1847–48.
Dr. Alexander H. Stevens	1848–49.
Dr. John C. Warren	1849–50.
Dr. Reuben D. Mussey	1850–51.
Dr. James Moultrie	1851–52.
Dr. Beverly R. Wellford	1852–53.
Dr. Jonathan Knight	1853–54.
Dr. Charles A. Pope	1854–55.
Dr. George B. Wood	1855–56.
Dr. Zina Pitcher	1856–57.
Dr. Paul F. Eve	1857–58.
Dr. Harvey Lindsley	1858–59.
Dr. Henry Miller	1859–60.
Dr. Eli Ives	1860–63.
Dr. Alden March	1863–64.
Dr. Nathan S. Davis	1864.

Dr. Nathan S. Davis, (held over)	1865.
Dr. D. Humphreys Storer	1866.
Dr. Henry F. Askew	1867.
Dr. Samuel D. Gross	1868.
Dr. William O. Baldwin	1869.
Dr. George Mendenhall	1870.
Dr. Alfred Stillé	1871.
Dr. D. W. Yandell	1872.
Dr. Thomas M. Logan	1873.
Dr. Joseph M. Toner	1874.
Dr. W. K. Bowling	1875.
Dr. J. Marion Sims	1876.
Dr. Henry I. Bowditch	1877.
Dr. T. G. Richardson	1878.
Dr. Theophilus Parvin	1879.
Dr. Lewis A. Sayre	1880.
Dr. John T. Hogden	1881.
Dr. J. J. Woodward	1882.
Dr. John L. Atlee	1883.
Dr. Austin Flint	1884.
Dr. Henry F. Campbell	1885.
Dr. William Brodie	1886.
Dr. E. H. Gregory	1887.
Dr. A. Y. P. Garnett	1888.
Dr. W. W. Dawson	1889.
Dr. E. M. Moore	1890.
Dr. Wm. T. Briggs	1891.
Dr. Henry O. Marcy	1892.
Dr. Hunter McGuire	1893.
Dr. James F. Hibberd	1894.
Dr. Donald Maclean	1895.
Dr. Nicholas Senn	1896.

NECROLOGY.

THOMAS S. ORR, M.D., of Alexandria, Ky., aged 56, died December 7. Dr. Orr was graduated from the Medical College of Ohio in 1869, and he was probably the best known practitioner in northern Kentucky. He had been suffering from mental disease for some time. He leaves a large family.

HENRY GASSET DAVIS, M.D., formerly of New York city, and latterly of Everett, Mass., died recently at the ripe age of 89 years. He was a native of Trenton, N. J., born there Nov. 4, 1807. He was a descendant of Dolor Davis, one of the early settlers on Cape Cod. The *Boston Medical and Surgical Journal* has a biographic note showing how Dr. Davis came to take up the study of orthopedic surgery. In the year 1835, he visited a sister, who was under treatment for lateral curvature of the spine, and became impressed that the plan of treatment, although the best then known to the practitioners in charge of the case, was susceptible of improvement. This led him to take up the study of medicine and to devote especial attention to this branch of surgery. In the winter of 1835–36 he attended lectures at New Haven, and was under the instruction of the professor of surgery. The next spring he went to Bellevue Hospital. He graduated from the Yale Medical School in 1839, practiced in Worcester a short time, and then went to Millbury, where he treated a large number of patients from the surrounding towns. In 1855 he left Massachusetts for New York city. Here he treated patients from all parts of the United States and from abroad, and also wrote a book on diseases of the thigh and hip. He was the inventor of several ingenious appliances. He was a man of ideas rather than of scholastic attainments, and as such disregarded erroneous traditions of the past and opened a way to the great advance made in America, especially in the study and treatment of hip diseases.

Dr. VIALLE, one of the editors of the *Actualité Médicale* of Paris. He left his entire fortune, about $50,000, to the benevolent institution known as the Hospitalité de Nuit.

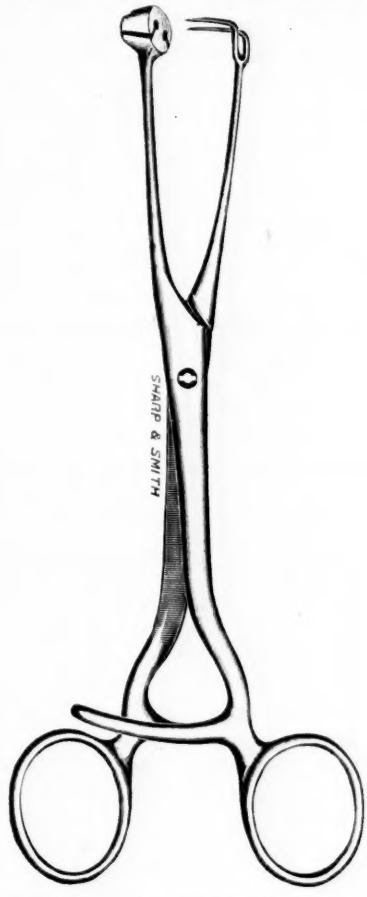
Dr. HERTZOG of the University of La Paz, Bolivia, whose works on hygiene and medicine have won him a national reputation. He was assassinated for some political reason just after his election to Congress. His funeral was made a national affair.

NEW INSTRUMENTS.

A NEW INSTRUMENT FOR STEADYING THE UTERUS DURING CURETTEMENT, TRACHELORRHAPHY, ETC.

BY A. L. CORY, M.D.

I think most gynecologists will agree with me that we need a better instrument for steadying the uterus in curettement, trachelorrhaphy, etc. Formerly we used a tenaculum. Its hold is but slight, and during late years most of Chicago's operators have used a pair of the American bullet forceps; its hold on the cervix is not much greater than that of the tenaculum, and if handed to an unskilled assistant to hold while the operator inserts and spreads the dilator or needles, he is very apt to pull too hard and tear out the instrument. I have seen quite extensive lacerations or tears from this cause in my own and in many other operators' cases. An improvement was



the use of two bullet forceps, one on either side of the cervix, the assistant putting the fingers of one hand through the loops in the handles of both pair, but even then one pair would tear out. For the last year and a half I have been using a small volsella which was made to hold ovarian tumors. This has three hooked teeth on each blade, and with a strong assistant, the injury from its use is frequently more than I am pleased with. Some time since, while in the store of Messrs. Sharp & Smith, surgical instrument dealers of Chicago, Mr. C. E. Clare called my attention to a newly imported French tongue holder. It occurred to me that here was what I was looking for to steady the cervix. I procured a pair and have had great satisfaction in their use. The lower blade has two round, strong needles set at right angles to the blade, about one-half inch apart. The upper blade has a piece of metal attached, with sockets in it to receive the needles. I can grasp the cervix with this instrument and have no fear of its being torn out, and when the operation is completed and the forceps removed

there remains only two small punctures such as would be made by passing two good-sized round needles.

4101 State Street, Chicago.

THE PNEUMATOPHOR.

This apparatus is designed to carry a large supply of air to breathe in places where it is impossible to breathe otherwise, in mines, fires, etc. It consists of a large bag suspended from the shoulders, with a mouthpiece as large as the trachea, so that there is no effort in breathing, and a spring that fits over the nose and closes it. The compressed oxygen (100 atmospheres), and the solution of soda to absorb the carbonic acid gas, are each contained in a receptacle opened automatically from without. Nitrogen is omitted as unnecessary ballast. The entire apparatus weighs only 4.5 kilograms, and folds up in a small pocket when not in use. It supplies air enough to sustain life for two hours in repose, and for over half an hour with the most violent exercise. It is described in full and illustrated in the *Therap. Woch.* for November 22, and has already rendered valuable services in mines, etc. Certain scientific investigations hitherto impracticable, in regard to the amount of oxygen consumed, etc., have been made possible by this invention, and in cases where it is advisable for the patient to inhale oxygen or medicines without effort, it promises to be of great assistance. It is the invention of Gärtner of Vienna, and has already been adopted by the fire department there after severe tests. The superintendent of the mines at Wittkowitz states in a technical journal that it far excels any other apparatus of the kind by its small bulk, its light weight, and its easy and rapid "in-operation-setting," which render it the rescue apparatus *par excellence* in mine explosions and fires.

MISCELLANY.

Mental Fatigue and Exercise.—It has been generally accepted that muscular exercise, gymnastics, was beneficial after continued mental effort, and school children are often put through a course of gymnastics to dissipate their mental fatigue after the morning's study. But Bum and others now declare that recent tests have demonstrated that fatigue from mental exertion is increased by muscular exertion, and that nothing will dissipate this fatigue but physical and mental rest, viz. sleep. —*Therap. Woch.*, November 22.

Case of Intoxication from Scopalamin.—Valude describes a case of intoxication with vertigo and delirium in a woman of 65, after the instillation of three drops of a solution containing one gram of hydrobromate of scopalamin to 200 grams of water. The instillation was made twice, to dilate the pupil for ocular examination. It resembles atropin in its effect for this purpose, and Valude has frequently used it where atropin was contraindicated on account of possible glaucomous complications. The delirium passed away the next day, but the patient retained a certain volubility of speech and her mouth remained parched and eyes abnormally bright. As she was of an extremely nervous temperament, with previous attacks of hysteria, he ascribes the intoxication to some exceptional nervous susceptibility, as scopalamin has always hitherto been well received by his patients.—*Journal de M. de P.*, November 22.

One Location for Oregon Insane Asylums.—Under the provision of the constitution of the State of Oregon "that all the public institutions of the State, hereafter provided for by the legislative assembly, shall be located at the seat of government," the supreme court of that State holds unconstitutional, in the case of State v. Metschan, Nov. 9, 1896, the act of the legislature (Laws 1893, p. 136) authorizing the establishment and maintenance by the State of a branch insane asylum at some point in Eastern Oregon. That an insane asylum is a public institution of the State within the meaning of the constitution it thinks is too clear for argument, though educational institutions are considered otherwise. All such institutions as come within this construction, of being strictly governmental in their character, must be located at the place designated in the constitution, although it may now seem desirable to do otherwise, until the consent of the people is obtained in the form of a constitutional amendment.

Must Not Go out on Car Steps to Vomit.—While it may be said, in the sense of decency, that it would be proper for a boy nearly 15 years of age, who is a passenger on a crowded excursion train, when admonished of the fact that he is about to vomit, to make an effort to avoid befouling his fellow passengers and soiling the car, yet, even under this view, the supreme court of Indiana says that the law would not justify him in exposing himself to peril, or excuse or mitigate his negligence when he seeks redress in an action for injuries sustained. To further illustrate: The court holds, in Cleveland, C., C. & St. L. Ry. Co. v. Moneyhun, decided October 21, 1896, that it is a clear and undoubted case of contributory negligence, which can not be controverted from any legal standpoint, for one under such circumstances to go out through the door of the vestibule and down on the lower step of a car in rapid motion to vomit, even though he may try to hold on to the railing.

Acetabulotome.—It is a difficult matter to make a correctly shaped acetabulum with the ordinary Hoffa or Lorenz spoon, in the operation for congenital luxation of the hip. Jagerink of Rotterdam has invented a special instrument for the purpose which scoops out the correct cavity almost instantly, and with no danger of cutting too deep. It also leaves it perfectly clean, as all the scraps and bone dust are taken up in the center of the instrument. It is described and illustrated in the *Ztsch. f. Orth. Chir.*, No. 4, and consists of a hollow ball augur. The ball is in two vertical halves and is also cut down to the center, thus dividing the upper half of the ball into quarters, with a narrow space between. Each quarter is sharpened to a knife edge on the side toward the right, and curves slightly inward around to the other side. As the handle is turned the screw within turns the ball; the four knife edges cut into the bone and scoop all the scraps into the center. The instrument is made in three sizes of balls, respectively 2½, 3 and 3½ cm. in diameter. There are also patterns of the holes made by the balls, so that it is easy to fit the head of the femur in them, and determine the exact size required. J. C. Trompert, Rotterdam, is the manufacturer.

Consent to Abortion no Bar to Action for Damages.—A complaint charging that all of the defendants save one entered into collusion with that one to perform upon the body of the plaintiff a criminal operation and an abortion, the supreme court of Wisconsin holds, in Miller v. Bayer, Oct. 13, 1896, clearly charges the defendants with entering into an unlawful combination to injure the plaintiff by performing upon her an abortion. Nor does the court consider it necessary, where the action is brought to recover damages, that the complaint should negative justification on the ground of necessity of saving life, for the reason that if the act was justifiable, the facts in that regard are a matter of defense. In this case it was further contended that the plaintiff could not recover, because she submitted to the operation performed upon her. Such, however, the court holds is not the law. It says that consent by one person to allow another to perform an unlawful act upon such person does not constitute a defense to an action to recover the actual damages which such person there by received.

Anthropology as a Positive Science.—Dr. Hrdlicka, one of the numerous expert medical witnesses in the Barberi murder trial at New York, is reported to have put in the following strong claim as to the position of anthropology and criminology: It is remarkable, to say the least and mildest, with how much irony

and even sarcasm such a positive and important science as anthropology is treated by men, lay and even others, who ought to know better. It should be made clear that, far from reposing on the presumptions and hypotheses, anthropology has for its greatest basis, and may be demonstrated to mainly consist of, the facts and nothing but the facts of the most positive of all medical sciences, namely, anatomy, and that its deductions are not guessing, nor even inductions, but simple, authorized judgments, of no less value than many every day purely medical and surgical opinions. Anthropology and its daughter, criminology, are sciences whose value will be manifested, whatever obstructions ignorance may pile in their roads, and that in the not far future.

Prophylaxis of Insanity.—On account of the importance of heredity in the production of insanity, it has been suggested that applicants for a marriage license should be required to present the certificate of a life insurance company, but as this is not practicable, Parisot (*Journal de M. de Paris*, of November 22), appeals to physicians as the only guardians possible in such cases to realize their responsibility and exert all their influence to prevent marriage on the part of those whom they know to be mentally unsound. He also urges the necessity of legislation to secure pure liquors, as long as it is impossible to prevent their consumption, stating that drunkenness, or even being drunk at the moment of conception is sufficient to engender idiot, epileptic or insane children, quoting Bautru's remark that the saloon is a place where insanity is sold by the bottle. He demands police regulations to prevent the spread of syphilis and adds that in cases of syphilis with mental complications, the rôle of the physician in interfering to prevent marriage is especially important.

Culpability of Mediums in Suggested Crimes.—An article of over forty pages in the October *Archives Cliniques de Bordeaux* calls attention to the serious consequences that may ensue when persons more or less predisposed to nervous or mental troubles, consult the frauds known as magnetic healers, mediums, somnambulists, etc. Numerous examples are described in full, presenting a dark picture of the evils that follow in many cases, ranging from hysteria to insanity and murder. It is surprising that the real culprit in many cases—the medium—is not prosecuted, and as in the Jean Fort murder case, the murderer is condemned to penal servitude when all experts agree that he is not responsible in any degree for the crime, while the medium who suggested it, continues her baleful practices unmolested. It states also that the number of insane criminals who would have been sent to an asylum instead of to the galleys if their mental condition had been understood, amounts to more than five hundred in the last five years alone in France.

May Give Opinion as to Nearness of Shot.—It is well settled that medical experts may give an opinion as to the means by which a wound was inflicted. But the supreme court of Kansas goes farther, and holds in the homicide case of State v. Asbell, November 7, 1896, that a medical expert, qualified by study and experience, who examined the body of the deceased shortly after the wound was received, may give his opinion as to whether it was produced by a near shot or one fired from a distance. The reason which it gives for this is that the characteristics of the wound, such as the color and condition of the skin around it, the coagulation of the blood mixed with powder, the depth of the wound, and the disturbance of the tissue throughout, can not easily be communicated to the jury, and some of the indications which would mean much to the expert could not well be described to an inexperienced person, the symptoms and characteristics of near wounds not lying within the range of common experience or common knowledge.

How to Change Linen into Silk for Surgical Purposes.—Linen threads are not much used in surgery on account of their tendency to twist and knot and the difficulty of threading them. A Russian physician, Professor Gubaroff, has invented a process which imparts to linen all the properties of silk and, as it is much less expensive, promises to supersede silk in military surgery. The ordinary "English" linen, made in Saxony, is first cleaned of grease by boiling in a soda solution, and after being well rinsed and sterilized in a vapor bath, is dried again. Then it is dipped dry into a 5 per cent. solution of photoxylin or celloidin (which is a concentrated form of collodion), with alcohol and ether in equal parts. It is then stretched on a frame to dry, when it will be found to have all the properties of silk thread. To transform the linen into silkworm gut it is dipped again and again into the celloidin, carefully drying between the dips, and finally polishing with a piece of cotton dipped in alcohol, to which a little ether has been added. This thread is strong enough to be substituted for the silk in sutures destined to be removed later, and it resembles the silkworm gut in all its desirable features. The addition of one-half of one per cent. of castor oil to the celloidin solution imparts an extra flexibility. It is best to keep it in a dry state, although it will stand a sublimate solution, but alcohol must be avoided.—*Cbl. f. Chir.*, October 31.

Money Paid for Partnership not Recoverable.—It is alleged in the case of Herrington v. Walthal, decided by the supreme court of Georgia Aug. 18, 1896, that one physician paid another $1,000 to be taken into partnership with him for a term of two years, and that the latter inconsiderately departed this life and thus dissolved the partnership a little more than three months after the partnership was formed. After the former had failed to recover the whole $1,000 from the administratrix of the latter, his petition being adjudged fatally defective in asking for the full amount and setting forth no facts upon which an apportionment could be made, he amended his complaint and asked for an apportionment on a time basis, or for seven-eighths of the $1,000. But the court declares that it would require but little reflection to show that an apportionment upon this basis would be entirely arbitrary, and says that the truth is that it does not believe it possible in a case like this to set forth any facts upon which a just and equitable apportionment could be made, and it accordingly affirms a judgment for the defendant. If the purchaser was introduced to the community as the partner of a physician in good repute and enjoying a remunerative income, it says that it would seem from the standpoint of conjecture, that he must have derived more benefit than the sum of $125 from this association, especially in view of the fact that by the death of his partner he in all probability succeeded to a practice which he might not have been able to build up in years.

Pliny's Botanic Gardens and Some Later Attempts.—The *Popular Science Monthly* for December has an article on botanic gardens, in the course of which it says that after the discovery of the medical properties of plants, it must have followed, in course of time, that representatives of the species to which remedial properties were attributed should be collected and grown in some place conveniently and readily accessible as need demanded. The last step did not immediately follow, however, since among the conditions which were earlier supposed to influence the potency of medicinal herbs, the locality in which grown, and the mysteries attending their collection were of the greatest importance. The first authentic record of the introduction of medicinal plants into cultivated plots of ground dates no farther back than the time of the elder Pliny, (23–79 A. D.) who writes of the garden of Antonius Castor, at Rome, in which were grown a large number of medicinal plants. This step may have been taken much earlier by the Greeks, Chinese or Mexicans, however. Later the Benedictine monks of Northern Italy paid great attention to the growing of remedial herbs, and devoted an important proportion of

the monastery gardens to this purpose. This practice was also carried beyond the Alps, and in 1020 a garden was in existence at the monastery of St. Gall, in Switzerland, a few kilometers distant from Lake Constance, which contained sixteen plots occupied by medicinal plants. A garden of this character was founded in 1309, at Salerno, and another in Venice in 1330. In 1309 the Benedictine monks founded an academy called "Civitas Hippocratica" at Monte Cassino, in Campania, which appears to the writer to be among the earliest, if not the first school of medicine, and established in connection with it a "physics garden." Within a week the plans for New York's botanical gardens will probably be adopted by the Board of Managers of that institution and the project got properly under way. The plans have been submitted to the Board. The gardens when finished will rival the famous gardens of the old world. They will be located on the Bronx River and the museum building, which will be one of the main features, will cost a quarter of a million dollars. Beautiful driveways, plants and flowers of all kinds and artificial lakes will be features of the landscape.

Evidence of Cause of Death.—In an action to recover upon a policy of life insurance where the plaintiff testified that in the past her husband had suffered from diarrhea, and had used spirituous liquors by the advice of a physician and to relieve his sufferings, the New York court of appeals insists, Hanna v. Connecticut Mutual Life Insurance Co., Oct. 27, 1896, that fact was not at all incompatible with the possibility that his death was eventually caused by intemperance, so as to invalidate the policy in question. And if it was inferable from the evidence that, although death may have been caused by the use of spirituous liquors, nevertheless such use had been under the advice and direction of a physician, it holds that the jury should have been permitted to pass upon the question of whether the immediate cause of death was not alcoholism. The court also holds that while the plaintiff was not concluded by the proof of death which she had presented to the insurance company, still the company had the right to rely upon the certificates which she delivered to its agent when making her demand of payment of the policy, as her representations, unless and until explained, their operation being that of admissions by her of a material fact. Prima facie, they were true state ments, though it was open to her to give evidence changing or correcting the facts therein appearing to have been stated by or for her. Had she shown by some evidence that the cause of death was or could have been other than as stated in the certificates, and an inference been permitted that the statements in the proofs as to the cause of death were incorrect, the court says a question would have been presented for the jury to determine.

The Charcot-Leyden Crystals.—Dr. D. Riesman, in the *Philadelphia Polyclinic* narrates some clinical experience with cases having the Charcot-Leyden exhibit more or less marked and gives the following description and history drawn from a dozen French and German treatises or journals. These crystals appear to have been seen in sputum by Charcot in 1856, in a case of catarrhe sec with emphysema. Similar crystals had been observed by him and Robin, in 1853, in the spleen and the blood of the right ventricle of a case of leukemia, and later by Charcot and Vulpian in the same disease. Neumann also found them in the blood of a patient dead of leukemia, and, at a later period, in leukemic and normal bone-marrow. Lewy found crystals resembling those of Charcot Leyden in polyps and papillomas of the nose; Forster found them in a maxomatous tumor of the optic nerve and in the thickened mucus of a dilated gall-duct; and Leyden in the sputum of asthma and, more recently, in the nasal mucus of a patient with acute rhinitis, in whom neither nasal polypus nor asthma existed. Cohn observed them, among other places, in the lymph-glands in malignant lymphoma, in mucous polyps of the nose, and in the bone-marrow of cases that had died of chronic nephritis and of pulmonary tuberculosis. The chemic nature of the crystals is not definitely known. Salkowsky long ago thought they were a crystallized mucin-like substance. Later writers identified them with Bottcher's sperma-crystals, which, chemically, consist of phosphoric acid and an organic base. But the crystallographic studies of Cohn have proved that Charcot-Leyden and Bottcher's crystals are not identical; aside from this they differ also in their simpler physical characters, Bottcher's crystals being usually spindle shaped, with curved planes and blunt edges. Their significance is not known. Leyden originally maintained that they caused the asthmatic attack by irritating the mucous membrane of the bronchioles, but their occurrence in so many other localities, as well as in non-asthmatic bronchial affections weakens this theory. The presence of the crystals in nasal polyps, which are known to be at times responsible for asthmatic attacks, is very interesting. In regard to the two patients in whose sputum the crystals were found, I may add that the man was not materially helped by treatment, but the boy, when last seen, was almost entirely well. The treatment in his case consisted in gymnastic exercise, potassium iodid, and arsenic, together with an anti-spasmodic for use during the attacks.

The Mercantile Marine Medical Service of Great Britain.—The London *Lancet*, September 5, gives the following digest of the duties of the medical officers of the mercantile marine: An act, known as the Merchant Shipping Act, passed in 1894, requires that every foreign-going ship having 100 persons or upward on board shall carry a duly qualified medical practitioner. Ship's medical officers, however, are more often appointed under the part of the same act relative to "emigrant ships." For the purposes of the act an emigrant ship is defined as one which carries more than fifty steerage passengers, and a steerage passenger is defined as one who is not a cabin passenger. Section 303 provides that a medical practitioner shall be carried on board an emigrant ship where the number of steerage passengers exceeds fifty, and also where the number of persons on board (including cabin passengers, officers, and crew) exceeds 300. A medical practitioner shall not be considered to be duly authorized for the purpose of this act unless he is authorized by law to practice in some part of Her Majesty's dominions, or in the case of a foreign ship in the country to which that ship belongs; and his name has been notified to the emigration officer at the port of clearance, and has not been objected to by him; and he is provided with proper surgical instruments to the satisfaction of that officer. If any person proceeds or attempts to proceed as medical practitioner in any emigrant ship without being duly authorized, he shall be liable to a fine not exceeding £100. Surgeons in charge of passenger ships should keep a record of any sickness that occurs on the voyage, whether among saloon passengers, emigrants or crew, and they are requested to report the same to the emigration officer at the end of the voyage. The remuneration for these appointments is extremely variable, ranging from a free passage to the port of destination to a salary of £10 a month during continuance in the service. The appointments are made by the various firms of shipowners and the applicants are sometimes numerous.

Necessity for Keeping Books.—There is a hint for the doctor in the decision of Plummer v. Weil, which the supreme court of the State of Washington handed down Nov. 5, 1896. This was an action brought to recover for professional services alleged to have been performed by a law firm, at the instance of the defendant, during the years 1892, 1893 and 1894. It was alleged that they were reasonably worth the sum of $1,000. A so-called bill of particulars was furnished upon demand, and, this not proving very satisfactory, a motion was made asking

the court to direct that an amended bill be furnished, and the supreme court holds that it was proper to dismiss the case when this was not furnished in accordance with the order therefor. In the bill of particulars furnished it was stated that no account was kept of the transactions with the defendant, and, further, that it was impossible to comply with the order of the court any better than had already been done, or to make said bill of particulars any more specific on the points directed in the order of the court. This bill of particulars the supreme court holds insufficient, and it says that its insufficiency could not be excused upon the ground that the plaintiff kept no books and could not specify the services or state their value. He assumed the burden of so doing when he brought his action in this form. Yet it is suggested that, under the circumstances stated, he might have maintained an action to recover an annual retainer. All of which would seem to be as pertinent and suggestive to the doctor as to the lawyer.

The Pan-American Congress.—From the souvenir number of the Mexican *Revista Quincenal:* "As the train draws into the station innumerable rockets soar upward to the sky, flinging down showers of brilliant hues upon the crowds below, while the strains of the national hymn float on the air. The multitudes throng forward and cheer with enthusiasm, the whole scene evidencing the delight and excitement of a people animated by some extraordinary occurrence. Who is it, thus arriving at the capital of the Anahuac, received with such rejoicing? Is it some mighty potentate whose friendship, whose alliance is solicited? No. It is a company of humble missionaries of the Galenic science, soldiers of scientific progress, whose motto is: To live and die for suffering humanity. The populace receive them with grateful homage, realizing the honor of such a visit from the representatives of the medical sciences throughout this vast American continent." The rest of the number after the address of welcome is devoted to illustrated biographic sketches in both English and Spanish of the officers of this and the preceding Congress, with historic notices of the medical and scientific institutions of Mexico, and a history of medicine in the country.

The Effect of Stretching on the Negative Variations of the Muscular Current.—Fick's hypothesis is confirmed by the results of some experiments by Schenck described in *Pflüger's Arch. f. Phys.* lxiii, page 317. He conducted the current from a frog's isolated gastrocnemius or sartorius through electrodes applied at the center and at a "thermic section" (produced by dipping one end of the muscle into water at 45 to 50 degrees) to the electric capillarimeter, whose threads were magnified and thrown into the opening of a Kries tachograph, and photographed on the revolving drum. The cotton threads leading to the electrodes were moistened with a 6 per cent. solution of sodium chlorid. He found that the negative variation was a trifle less in isometric tetanus than in isotonic, which confirms Meissner's and Cohn's statements, and that it seems to be diminished by stretching the muscle during isotonic tetanus to its length when in repose, and increased by removing the weight. But in the case of fatigued muscles the reverse frequently occurs. Agreeing with du Bois-Reymond, Schenck states that stretching the quiescent muscle diminishes the current. In several experiments the extent of a single negative variation was increased during tetanic contraction by stretching, and decreased by removing the weight, as was shown by the photographed curves. In most of the experiments, however, it was impossible to see the actual top of the curve, owing to the manner in which the experiments were conducted. Schenck also investigated the continuous contraction induced by stimulus with ammonia and veratrin. He found that in excitation of the sartorius with ammonia the negative variation was preceded by a positive variation in most cases, and that stretching generally made the negative variation less. In excitation of the gastrocnemius with veratrin, the negative was followed by a positive variation which continued throughout the period of contraction. During this positive variation tetanizing and stretching produced the opposite effect from that produced during the negative variation. A similar positive variation was noticed in unpoisoned preparations with a special tendency to contract, and this occurred in tetanic excitation as well as with a single stimulus. Schenck concludes by advancing an original hypothesis to explain these positive after-variations.—*Cbl. f. Phys.*, November 14.

The Extent of the Glycogenic Function of the Liver.—Mosse has recently published the results of his study of this subject, which contradict those obtained by Seegen. He states that they demonstrated a glycogenic function in the liver, but not to such an extent that the sugar can be the only, or under any circumstances the most prominent source of energy for the organism. He refers also to the Cavazzani experiments with electric excitation of the plexus celiacus, which resulted in an increase of sugar in the liver, remarking that this may explain the larger amounts of sugar obtained by Seegen in the liver, which may have been due to mechanical excitation. Seegen replies in the *Cbl. f. Phys.* of November 14, suggesting that Mosse's experiments were limited in number, seven in all, and inferring that they are scarcely to be compared in reliability with his own laborious investigations. He states that the facts established by the Cavazzanis were that electric excitation of the plexus celiacus was followed by a decrease in the amount of glycogen and that the surplus of sugar found in the livers of dogs immediately after death, is in direct proportion to this decrease of glycogen. They conclude, therefore, that the liver sugar is derived from the glycogen. Seegen queries whether we are justified in accepting postmortem facts as applicable to living beings, but adds that their experiments confirm his own experience as to the notable decrease of glycogen in a muscle after electric stimulation of it or of its innervating nerve. This loss is scarcely in proportion to the work performed by the muscle, as it is so great that even a very small portion of it would have sufficed for the muscular effort. Seegen experimented with the inductive current, also with curarized animals and with tetanic stimulation. He refutes the possibility of mechanical excitation during his experiments by describing his extremely cautious and round-about method of obtaining the blood and queries, also, whether mechanical excitation alone would be sufficient to provoke any reaction of the kind, which nothing has demonstrated up to the present time. The most important result of Mosse's investigations, he concludes, is that the difference between the amounts of sugar found in the portal veins and in the hepatic vein during narcosis is collectively much smaller than in non-narcotized animals, which fact was established long ago by Abeles, as also by Seegen himself.

Importance of the Chemistry of the Respiration in Diagnosis and Therapeutics.—Robin has been studying for a couple of years the chemistry of the respiration in the normal condition, in infective fevers and under the influence of cold baths. This means of investigating the changes occurring in the organism, has not been utilized to any extent, but Robin considers that he has established its importance and practical value in diagnosis, prognosis and therapeutics of disease. His investigations have been conducted on over a hundred subjects, and with more than a thousand analyses. The points studied were not only the variations in the pulmonary ventilation, the percentage of CO_2 and of O_2 in the air expired, the respiratory quotient, and the quantities of CO_2 and of O_2 exhaled and absorbed per hour, but also the relations between the weight of the subject during a unit of time (kilogram-minute) and the CO_2 and O_2 as well as the amount of O_2 absorbed by the tissues. It is this last point which he considers of paramount importance as a new indication for

therapeutics. The details of his experiments and analyses are given in the *Bulletin of the Académie de Méd.* October 27. They prove that the acts of oxidation are defensive processes of the organism in its struggle with bacteria, and therefore that the physician should favor in every possible way the absorption of oxygen in every infection, especially when there are typhoid complications. He made a special study of the effect of cold baths on the chemistry of the respiration, which they greatly accelerate, but their chief value lies in the fact that they promote the absorption of oxygen. To this he ascribes their marvelous effect in infective diseases, which he explains as follows: Cold baths reduce the temperature by diminishing the acts of hydration and segmentation, the first stage in cellular disintegration, and of the production of certain toxins which are important sources of febrile elevation of temperature. Cold baths also exaggerate the processes of oxidation, which transform the bacterian toxins and those which develop in the course of the morbid disintegration of the tissues into soluble products, easily eliminated and but slightly toxic. They also increase the arterial tension, invigorate the action of the heart and increase the diuresis, thus facilitating the sweeping out and expulsion of the waste products. These effects are accomplished through the mediation of reflex action on the nervous system, as is proved by the increased proportion of phosphoric acid in the urine to the total amount of nitrogen. The larger amount of oxygen absorbed by the tissues while under the influence of cold baths, seems to be one of the means by which the economy promotes the processes of oxidation. When cold baths do not promote respiratory changes, they are useless, and a chemical study of these changes will determine henceforth the cases in which they are beneficial and those in which they are not, which will prove an important factor in the prognosis.

Experts Charged with Not Telling the Truth.—In the personal injury case of Hall v. Incorporated Town of Manson, which the supreme court of Iowa decided Oct. 29, 1896, the plaintiff contended that by reason of a fall caused by the defendant's negligence several of the ligaments of the second and third toes were ruptured and her ankle severely sprained. Several medical men testified for her that they had just measured her foot at various places, and her leg six inches above the ankle, and found it considerably larger than the other foot. At the point above the ankle they said that the leg was smaller than the other leg at the same point. An equal number of doctors, who had just measured the injured foot at the same places, swore, for the defendant, that it was the same size as the other foot, except in the measurement of the leg above the ankle, which was one-sixteenth of an inch larger than the other leg at the same point. It will not admit of a doubt, says the supreme court, after making this statement, that this array of medical men were not all telling the truth. Either the injured foot and leg were, at the points where measured, the same size as was the other foot and leg at corresponding points, or it was larger or smaller at some or all of said points of measurement. Now, clearly, it continues, when such skilled men differ so radically touching a matter of mere measurement, as to which, it thinks, any number of men lacking in skill, but possessed of ordinary good sense, ought to substantially agree, because relating to a fact capable of exact ascertainment, it would be proper to resort to the practical plan of taking these measurements in the presence of the court and jury. In other words, after expressing its opinion of the veracity of some of the experts in language admitting of no misunderstanding, the court lays it down as law that there is nothing indelicate in the measurement of a foot or arm or ankle in a proper case. Yet in this connection the court hedges a little by stating that it does not hold that in all cases, as a matter of right, one party may require the injured party to expose the injured part of his person to the jury. But when such exposure is in no way indelicate, and seems to be essential in order that the jury may be properly and correctly advised as to the material fact which is in dispute, it is not only the right of the court to order such exposure and examination or measurement of the injured part of the person on the request of a party, but its duty so to do. Again, it says that while he would be a bold man who would assert that the evidence of experts is in all cases valueless, the testimony of medical men in this case touching these measurements, a matter not resting in opinion at all, but capable of physical demonstration, being in direct contradiction, is well calculated to shake one's faith in the reliability of experts. Mr. Justice Robinson, it should be added, vigorously dissents from what he styles the holding of the majority that the district court has no discretion, and that in all cases similar to this the defendant may, as a matter of right, require a woman whose injuries are in question to partially disrobe herself in the presence of the court, jury, members of the bar and possibly a court room full of bystanders, and raise her garments sufficiently high to permit each of the twelve jurors to see her legs measured six inches above the ankles, and this done even though other evidence is at the command of the defendant, and at hand, which may show that the exhibition is wholly unnecessary.

Some Statistical Gleanings.—Only 906 persons in 1,000,000 die of old age.——Twelve Englishmen in every 10,000 die of gout.——Of every 1,000 sailors 84 have rheumatism every year.——Epilepsy is most frequent in England, 51 deaths to 10,000.——The death rate of the French army is 107 to 10,000 men every year.——Of every 10,000 deaths in St. Johns, N. F., 2,230 are of bronchitis.——Liability to death from heart disease is greatest between 30 and 40.——There have been 196 visitations of the plague in Europe since 1500.

THE PUBLIC SERVICES.

Army Changes. Official List of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Dec. 5 to 11, 1896.

Major William C. Shannon, Surgeon (Fort Custer, Mont.), is granted leave of absence for one month on surgeon's certificate of disability, with permission to leave the Dept. of Dakota.

First Lieut. James M. Kennedy, Asst. Surgeon (Ft. Missoula, Mont.), will proceed to Ft. Custer, Mont., and report for temporary duty at that post.

First Lieut. Paul F. Straub, Asst. Surgeon (Angel Island, Cal.), is granted leave of absence for one month.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending Dec. 12, 1896.

Asst. Surgeon H. F. Parrish, resignation accepted from Jan. 1, 1897, Dec. 9.

Surgeon E. H. Marsteller, ordered to the "Raleigh."

Surgeon H. G. Beyer, detached from the "Raleigh" and ordered to the "Newark."

P. A. Surgeon H. B. Fitts, detached from the "Essex," ordered home and placed on waiting orders.

P. A. Surgeon C. D. Brownell, detached from the Puget Sound naval station and ordered to the "Petrel" Dec. 16.

LETTERS RECEIVED.

Alden, C. H., Washington, D. C.; Alexander, L. C., Philadelphia, Pa.; Allport, Frank, Minneapolis, Minn.

Bailey, Wm. Curtis, Las Vegas, N. Mexico; Baker, F C., New York, N. Y.; Bardon, Fred, Keokuk, Iowa; Beissel, Dr. Aachen, Germany; Beman's General Newspaper Agency, Ann Arbor, Mich.; Brattain, G. E., Payne, Ohio: Burns, R. J., Freeport, Ill.; Burton, H. G., San Diego, Cal.

Coale, R. Dorsey, Baltimore, Md.; Colgan, J. F. E., Philadelphia, Pa.; Cullen, G. I., Cincinnati, Ohio.

Dodds, F. S., Anna, Ill.; Doherty, David J., Chicago, Ill.

Eichberg, L. R., New York, N. Y.

Flint, Austin, New York, N. Y.

Gerhard, G. S., Ardmore, Pa.; Gibbs, M. D., Hartford, Mo.; Gottheil, Wm. S., (2) New York, N. Y.; Gould, George M., Philadelphia, Pa.

Hubbard, G. M., Nashville, Tenn.; Hummel, A. L., (2) New York, N. Y.

Inglis, David, Detroit, Mich.

Jenkins, J. F., Tecumseh, Mich.; Jerry, J. A., Chicago, Ill.

Keen, W. W., Philadelphia, Pa.; Koechl, Victor & Co., New York, N. Y.

Lippincott, J. B. Co., Philadelphia, Pa.; Luckey, J. E., Chicago, Ill.

Medical Examiner The, New York, N. Y.

Noble, H. E., Toledo, Ohio; Northwestern Christian Advocate The, Chicago, Ill

Parke, Davis & Co., Detroit, Mich.; Pollock, M. D., Decatur, Ill.; Prewitt, T. F., St. Louis, Mo.

Reed, R. Harvey, (3) Columbus Ohio; Ridlon, John, Chicago, Ill.; Rohe, George H., Sykesville, Md.

Sattler, Robert, Cincinnati, Ohio; Schering & Glatz, New York, N. Y.; Seibert, W. H., Steelton, Pa.; Stearns, Frederick & Co., Detroit, Mich.; Sub cription News Co., Chicago, Ill.

Victor, Koechl & Co., New York, N. Y.

Watson, F V., Keokuk, Iowa; Way, J. Howell, Waynesville, N. C.; Williams, Chas., Syracuse, N. Y.; Wood, E. S., Leavenworth, Kansas; Wyckoff, R. M., New York, N. Y.